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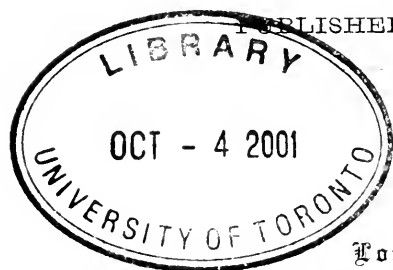
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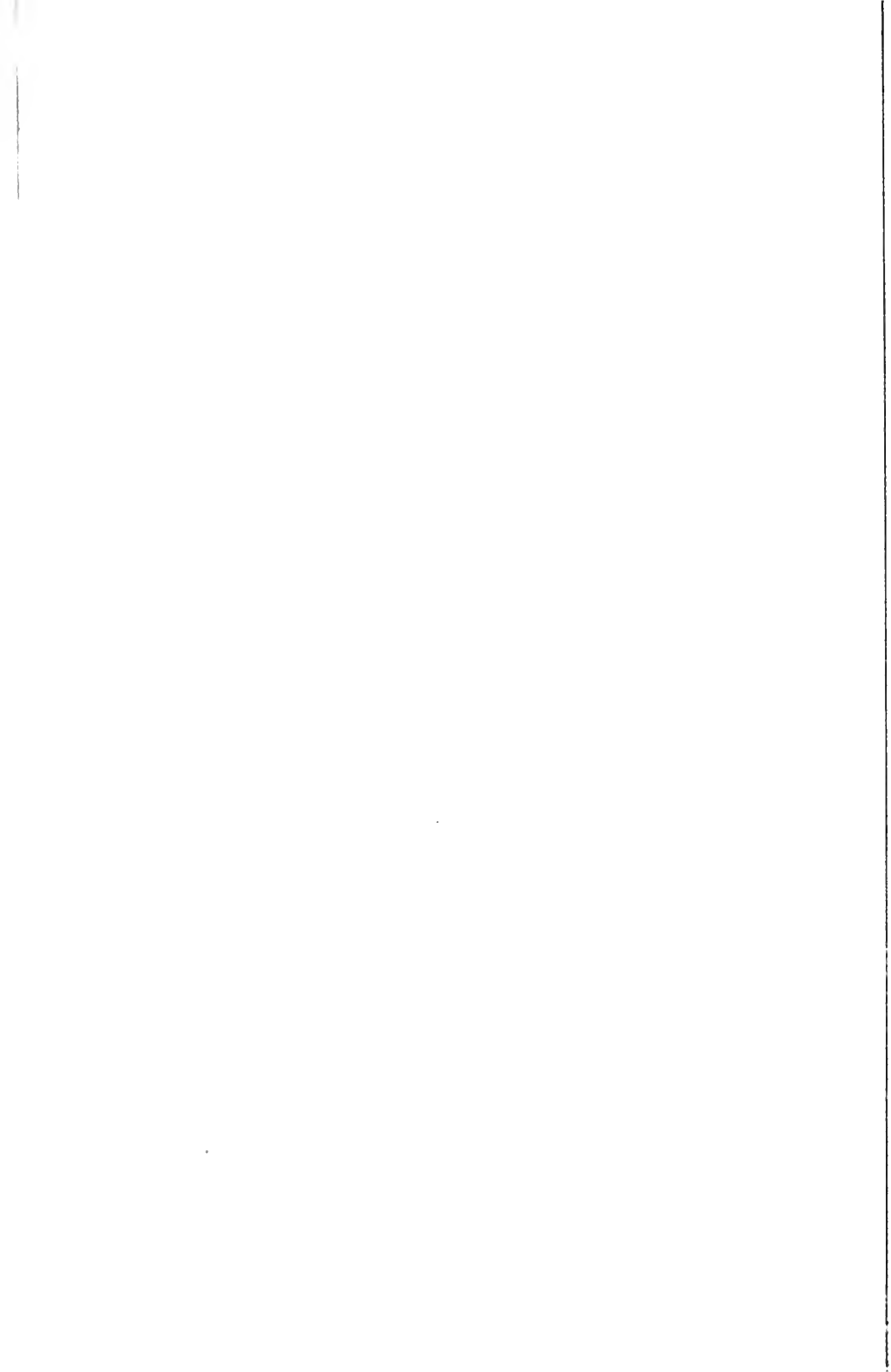
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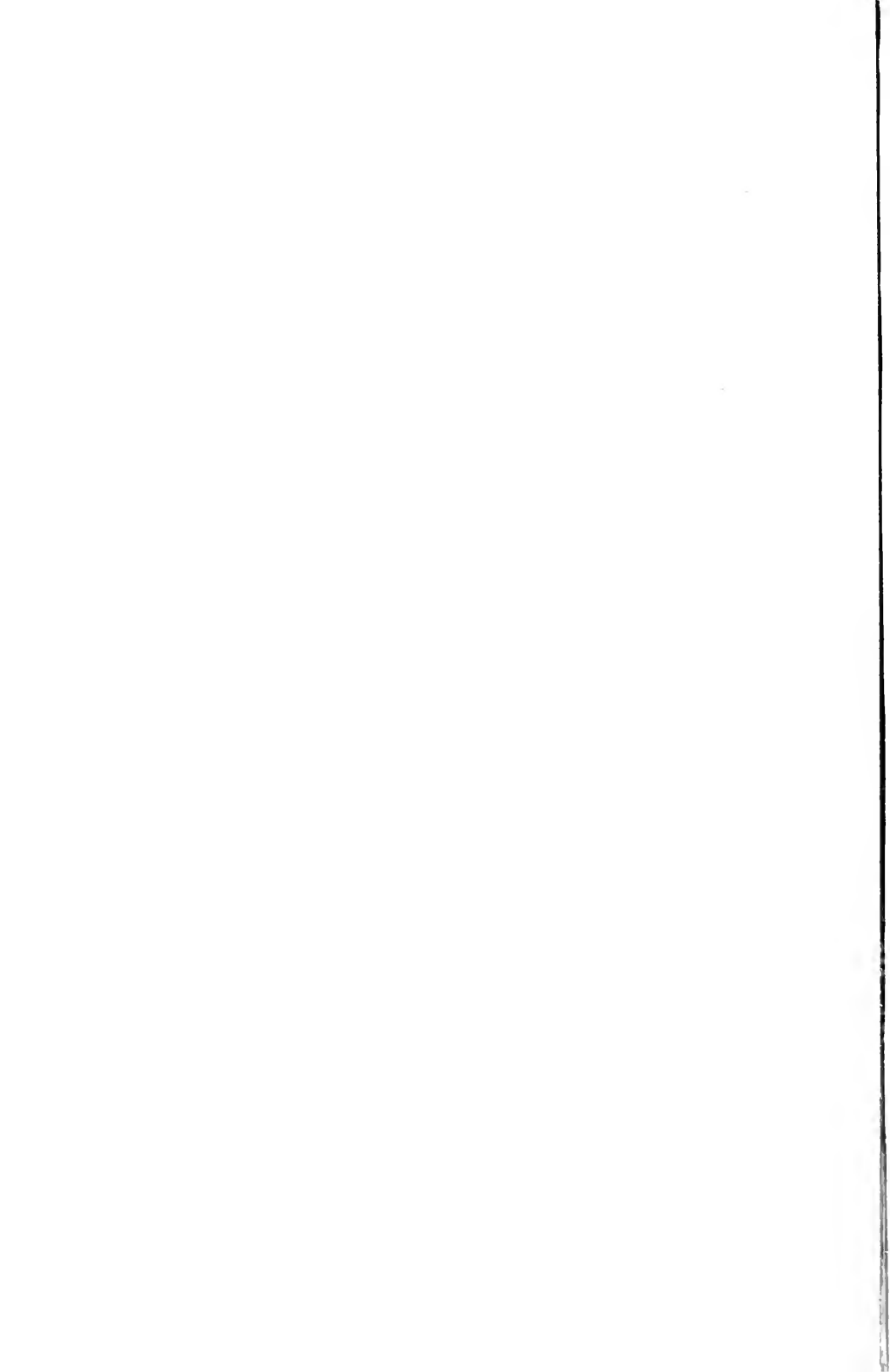
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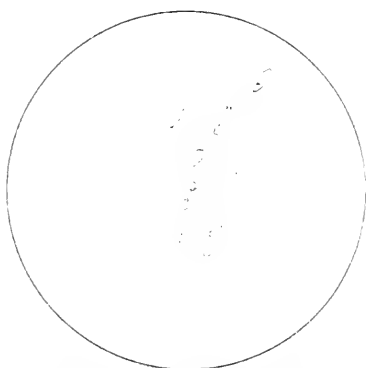


Fig. 1. *Sputum Klebsiella*.

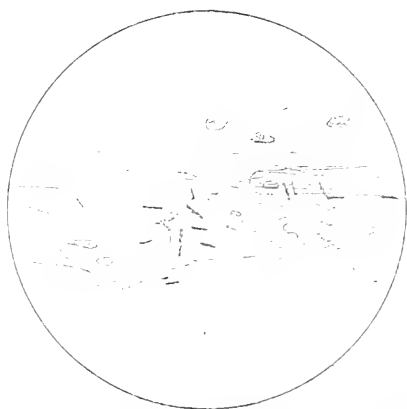


Fig. 2. *Sputum*. *Cryptosporidium* in composition of *Salmonella*.

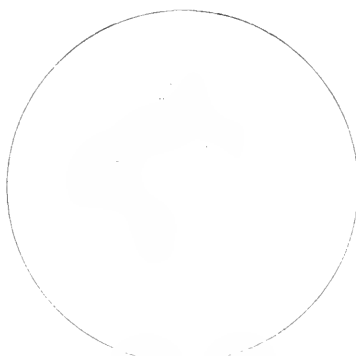


Fig. 3. *Microscopic* *Salmonella* *Salmonella* *Salmonella*.

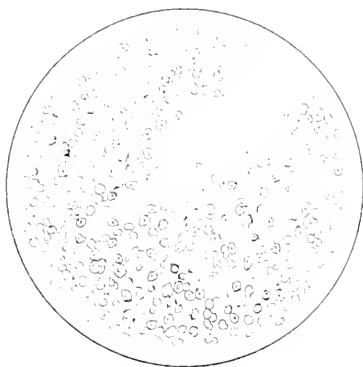


Fig. 4 Intercrystalline membrane, Serripinus during life

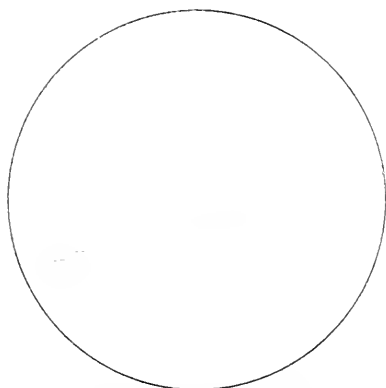


Fig. 5 Lung Koch's bacillus

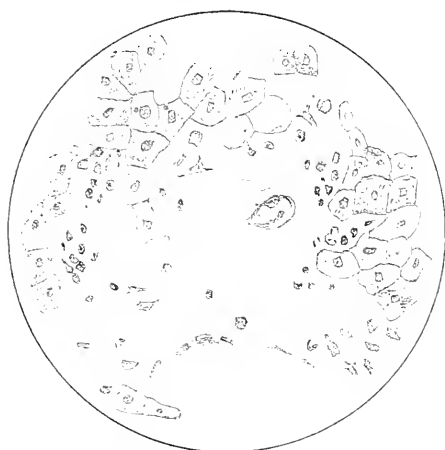


Fig. 6 Liver tubercular deposit, Koch's bacillus

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PRESIDENTIAL ADDRESS,

*Read at the Annual Meeting of the British Laryngological Association,
8th December, 1893,*

By JOHN MACINTYRE, Glasgow.

Gentlemen,—My first duty is to return my sincere thanks to you for the honour conferred upon me by electing me President of this Association. Its work has prospered in the past, as might have been expected from those who have preceded me in this position, and I naturally feel the responsibility of being called upon to do what they have done. All I can promise is to do what lies in my power to advance the interests of the Association during my term of office.

I feel you will agree in saying that the gentleman who has just preceded me deserves our warmest thanks for the very able manner in which he discharged the duties of his office. Neither time, nor distance, nor work, was allowed to interfere with whatever he was called upon to perform. It is only fair to say that the prosperity which attended us during the past year is in no small measure due to the abilities and enthusiasm displayed by Dr. Sandford.

It was my privilege to attend the meetings called to discuss the advisability of founding an association for the study of laryngology in this country, and, as one of the original members, I might safely say that we are more than ever convinced of the wisdom of so doing. I am sure each has been benefited, but, setting aside the personal aspect of the

question, the Association has done something to promote the study and advancement of this special branch of medicine. The result might have been anticipated, for, while it may be stated with truth that at no previous time have greater advances been made in general surgery and medicine than during the past twenty years, it may also be said that this is specially true of the study of diseases of the upper respiratory tract. Indeed, in no branch of science is it more difficult to grasp the advances at present being made. A glance at our text-books will show how difficult it is for any author to convey an idea of the enormous literature at our command; new methods of observation and treatment are being constantly recorded, and many pathological and etiological features are being constantly brought to light. It would indeed have been a matter for regret if individual workers should have been deprived of the encouragement, criticism, and aid in research, which can only be obtained by being brought in contact with each other in such an Association as this. Moreover, a glance at the reports of the good work being done in similar associations in many of the European states, and on the American continent, would convince anyone of the wisdom of founding a laryngological association in our own country. It is not my intention, however, to allude to any question of a polemical nature; by our work, and that alone, we shall be known; by it we must, and desire to be judged, not only by the laity, but by our professional brethren. Hence it becomes my privilege to offer a hearty word of congratulation and good wishes to all engaged in such work, whether in this or any other association at home or abroad. We have benefited to a very large extent by their work; we trust they may, to some extent, by ours. And what is true of our history in the past is equally so of last year. Whether looked upon from the literary or demonstrative points of view, the meetings held in 1892-3 will compare favourably with those of former years. Our discussions have been of great interest; the criticisms honest and sincere; we have had many excellent papers, and the clinical work and demonstrations have shown that the field of research has not been neglected. We are stronger in numbers; our enthusiasm is greater; and the results ought to be sufficiently encouraging to stimulate us to even greater efforts in the future. These results have not been obtained without great care and interest on the part of the Council, and our best thanks are due to those gentlemen who have done such good work. A large share of this has fallen to our secretary, Mr. Wyatt Wingrave, and it is only right that we should acknowledge our indebtedness to him for the able and conscientious way in which he has performed his duties.

Our best thanks are also due to the gentlemen who contributed so much to the work of last year by reading papers, and giving clinical and other demonstrations.

The annual meeting affords an opportunity of reviewing something in addition to the history of our Association, and this is probably the object of the usual presidential address. In such a branch of science as ours there are many subjects at present little understood, and a reference to what has been done in one or other of these, with suggestions for what may

be expected in the future, offers a suitable reason for the choice of a subject. I have chosen as the subject of this address a consideration of a branch which has not yet been fully investigated, but to which we have already paid some attention, viz., "The Etiology of the Diseases of the Nose and Throat," and that with special reference to the influence it has had, and in the future may have, upon the classification and treatment of affections in these regions.

During the past two or three years I have given some demonstrations upon this subject, and I should be sorry to show any tendency to exaggerate a study which has proved of great interest to myself, or to minimize other branches of our work. On the contrary, I would emphasize the fact that it is the duty of each Fellow to bring before the Association any new fact in any field which his experience has taught him. Some prefer to devote a portion of their time to the improvement of instruments; others, to the evidence of disease as studied at the bedside; many, to therapeutic advances. Each and all of these have their value in a science which is as yet incomplete, but special reference ought to be paid to therapeutics, because we must never forget that it is our first and highest duty to relieve the sufferings of those who are entrusted to our care. While it may, therefore, be useful for future advances that etiological and pathological subjects should receive our best attention, nevertheless we are daily called upon to treat our patients with the means at our disposal, and in the light of our present knowledge. What the study of etiology may be for us we know not; much is expected of it—all will not be realized—but that its influence has been great no one doubts, and that it is likely to prove more so in the future I trust to be able to demonstrate. Some time ago, when discussing this question with an able exponent of our special work, he said it was difficult to do much in this direction without including a good deal of general pathology and etiology. This may be true, but why should we not bring the facts of general pathology and etiology to bear upon our work in as far as they are required to throw light upon it? Some have gone to the other extreme and attempted to set up a special pathology, and they have naturally failed to establish it. But the history of clinical medicine has shown that the laryngoscope has not only helped those engaged in our special branch, but it has thrown much light upon the study of general medicine and surgery. It is just possible that the study of etiology in special regions may, in the future, aid those engaged in the general study of medicine, and probably also in that of research, which is for the most part carried on in the laboratory.

No sooner have we engaged upon this study than we are beset with difficulties, and the first is to attempt to give some clear indication of what is meant. It might be done in the following way: Given a patient suffering from deviation of the normal structure and function, our object is to attempt to discover what changes have occurred to produce that series of objective or subjective phenomena, which when grouped together constitute what we know as disease, malaise, or want of ease. The boundary line between the physiological and the pathological is by no means well

defined; the pathological would, indeed, often appear to be but an exaggeration of the normal conditions of life. If the changes brought about are sufficient to be recognized by physical diagnosis, they are made known to us, or our patient, or both, by a series of signs. The patient is made conscious of these by a series of subjective phenomena, but the objective phenomena may be of such a minute nature as to be beyond observation, and so constitute what is known as a functional disorder.

PAST AND PRESENT STUDY OF ETIOLOGY.

The presence of disease infers the existence of a cause or causes; that these have been brought in contact with the patient; that the tissues were incapable of resisting the invasion of the new force or forces. Again, we have in most cases to assume a deficiency in resistance of the tissues after the introduction of the causes; that certain conditions were present favourable to the existence of the new force—in other words, that more than a cause was at work; and our difficulties increase still further when we attempt to discover the exact influence exercised by each factor. Indeed, until recently it was quite impossible to obtain anything like definite knowledge of many of the most active causes of disease. I refer more particularly to bacteriological causes, which have attracted so much attention of late. Lastly, to explain the results we must discover how the causes acted so as to produce the disease. A study of etiology, therefore, involves a great deal more than at first sight appears. Some probably place too much weight upon one set of causes; for example, etiology did not begin, nor will it end, with the study of bacteriology, because, as I have said, the cause as a rule proves upon investigation not to be simple but complex. We need not only a special influence to produce a disease, but a whole series of conditions which modify or influence the true cause in the production of it. That is not all, because once the disease has been set up in the body it may become the cause of secondary pathological conditions, these again of tertiary, and so on. For example, an old cicatrix will produce dilatation of the pharynx above it; catarrh leads to stenosis; tubercle and malignant disease to perichondritis and caries; one of the exanthemata may set up inflammation of the membrane of the nostrils, that may be followed by hypertrophy, the hypertrophy by stenosis, the stenosis by irritation of the naso-pharynx, and this by mischief in the ear, or it may even be infective disease of the brain and cord.

CONSIDERATION OF THE CAUSES.

A reference to our classical text-books overwhelms one with the multitude of causes assumed to be at work in the production of disease in the nose and throat, and a careful analysis will show how difficult it is to grasp the influence exercised by each. Allow me to illustrate the difficulties by a few examples. In the production of catarrh, age, sex and occupation are commonly quoted as factors, but occupation often infers age and sex. Again, a particular occupation may induce a certain disease, but the same malady will not affect other persons so engaged, and others not following that occupation may suffer from it. Disease is

often traced to air, water, and food, but frequently these are merely vehicles for the transmission of the cause, although in certain instances disease may arise from intrinsic defects in one or all of these. Again, we have change of temperature—say, cold; but cold often means, not absolute cold, but the association of other conditions, such as damp air, with movement in the atmosphere. Such terms as “poisoning” and “weak constitutions” are too indefinite to grasp; hereditary and congenital causes are constantly being quoted and often convey as little meaning. These latter, however, do not offer the greatest difficulty, because, if we could trace the production of disease in individuals, an explanation of its transmission would, in all probability, be comparatively easy. In the past, few diseases could be traced, and, with the exception of foreign bodies, injuries, absence of necessary elements in food, or the administration of deleterious material, the exact causes of the vast majority were wholly unknown, unless we include such general terms as gout, rheumatism, fevers, etc. Without doubt, the greatest aid to the study of etiology has been obtained from bacteriological researches. Moreover, this study promises to throw a great deal of light upon many of the factors quoted above, and whose influence could not previously be understood. For example, the study of the life-history of these organisms has revealed much about the conditions necessary for their existence; all require pabulum and a certain temperature; some require light, some heat, others air; and nearly all are influenced by the presence of other substances, which may be of an inorganic or organic nature. Thus antiseptics, on the one hand, will arrest development, if in sufficient strength and properly applied; on the other hand, the presence of certain substances facilitates their growth. The introduction of the tetanus bacillus in some animals does little harm until an organism such as the bacillus proteus be injected with it. Further, apparently harmless organisms, introduced with other apparently harmless organisms, will produce disease. The study, therefore, of the life-history of these organisms will, in all probability, throw light upon the exact influence produced by such agents as atmosphere, moisture, season, and to what extent such articles as food, water, and air are responsible for the production of disease. With a view of facilitating this study in our special department, I have added (see page 13) a fuller list than in any of my previous demonstrations, and I have, for the same object, brought a series of microscopic drawings and photographs before you. For example, we now know a great deal about the causes which are mainly at work in the production of inflammation, suppuration, erysipelas, lupus, tubercle, leprosy, diphtheria, and typhoid. Much has been done, more is required, because no one working in our special department can forget how many affections of the upper respiratory tract are due to constitutional affections, such as gout, rheumatism, and fevers, particularly the exanthemata, and, I need hardly add, malignant disease.

MEANS OF BRINGING IN CONTACT.

In a certain number of cases the causes already exist within the individual—they may be hereditary or acquired. For example, micro-

organisms often lie latent in diseased teeth, in depressions in the tonsils, or the accessory sinuses, and only require conditions necessary for their development to produce disease. It has been stated that the buccal secretion is antiseptic in nature, but a careful examination of the contents will show how difficult it is to establish this proposition, for in health, even, we find many pathogenic organisms. In the accompanying figure will be seen a variety of organisms found in an apparently healthy mouth. Some of these, after cultivation and injection, produced suppuration in animals. In other instances, however, the causes are brought from without, and it is necessary to trace the channels by which they come. For the most part they are due to contact with others infected, or to such agents as air, water, food, and clothing.



THE OVERCOMING OF THE RESISTANCE OF THE TISSUES.

In some instances this is easily enough explained, for injuries, administration of drugs, pressure upon nerves, absence of necessary elements in food, generally produce results which are clearly enough to be traced to their causes. That micro-organisms may pass from the superficial to the deeper layers of the coverings cannot be doubted; this can be seen from the next drawings given. In the first the mycelial spores will be seen passing through the epithelial structures of the mucous membrane of the nose weakened by the invasion of sarcomatous disease; and in the second drawing the spores will be seen developing within the tissues. That great protection exists in the nose and throat one cannot doubt. We have the air as it passes through the nostrils sifted to an extent by the vibrissæ; the structures within the cavities slope downwards and backwards, so that the secretions readily pass into the alimentary tract, aided by the action of the cilia; there is abundant secretion secreted from the epithelial cells, each one of which may be looked upon as a gland capable of taking matters on the one hand from blood-vessels, and, on the other, passing it on to the surface of the membrane. Moreover, the lymphoid and connective tissues of the mucous membranes offer still further resistance; the vascular supply is great, and the rich nerve supply governing the blood-vessels and turbinated bodies is not surpassed in any other mucous surface. Con-



sequently, obstruction or deviation from the normal anatomical conditions of the passages, weakness in the individual cells, or the nervous and vascular arrangements, and that in local or constitutional affections, must lessen the protection. Abrasions are most dangerous of all, especially if recent, and these often occur at the points of weakest resistance, say in the middle line of the lower lip, angles of the mouth, margin of the epiglottis, and the region of the fauces—in other words, where, from the study of development, we know parts originally distinct and separate have become united. Again, the tissues after the invasion of the causes have further power of resistance. We need not commit ourselves to Metschnikoff's theories, ingenious and excellent as they appear to be. That the corpuscles of the blood and cells of the tissues have the power of counteracting organic mischief within the tissues no one can doubt who has studied the processes by which nature casts out that which is deleterious, or seals it up in cysts or by connective tissue cicatrization. All these, again, mean healthy nervous vascular, and, I would add, particularly lymphatic structures for the following reasons. When chemistry has helped us still further in understanding the products of micro-organic life, it will not unlikely be found that they are by no means stable compounds; that the tissues have the power of reducing them to simpler may be safely inferred, otherwise it is difficult to explain how recovery takes place in acute and chronic infectious diseases. These products are carried by the blood and lymphatic system to the various organs of secretion and excretion, but it is not unnatural to assume that they may to a certain extent be split up into simpler compounds or elements within the system. If we think how little is required to raise the temperature by injections of tuberculin—a product of bacillary growth—we are almost forced to such a conclusion, otherwise it is difficult to see how life could be preserved so long in chronic tuberculosis.

HOW THE CAUSES ACT.

Beyond mechanical effects, comparatively little was known until very recently of the manner in which these causes acted. Doubtless many of the organic forms act by mechanical irritation, but they are most injurious in all probability from the products they produce. To learn that bacteria could produce nitrogenous waste products or poisons was the first step in advance. Panum is quoted by Brieger, our greatest authority, as being the first to isolate putrid poisons or ptomaines. Many others have since been discovered, but the works of Koch, Loeffler, Roux, Yersin, Hanken and Fraenkel are all specially interesting to us, inasmuch as they deal with the products of organisms associated with the production of specific disease. We cannot, however, over-estimate the facts brought out by Loeffler, Roux and Yersin by demonstrating that typical symptoms, say of diphtheritic paralysis or death, can be produced by the introduction of these toxic agents without the introduction of the organisms which produced them.

CLASSIFICATION OF DISEASE.

The present classification of disease in our text-books is by no means satisfactory, and Mr. Lennox Browne, in an able paper read in this

Association, called attention some years ago to this fact. Many difficulties exist in classifying disease owing to the imperfect state of our knowledge, and all attempts have to a large extent failed, whether based upon anatomical, physiological, or pathological grounds. If we attempt to classify them according to the region in which they are situated, it means repetition, and hence we have such numerous terms for catarrh, as rhinitis, naso-pharyngitis, pharyngitis, and laryngitis. We have, further, to write special chapters upon the nervous, muscular, and other systems. In consequence of the confusion a large portion of the chapters in our text-books have headings which indicate symptoms merely, such as catarrh, rhinitis, tonsillitis, abscess, epistaxis, etc. A glance, however, at special works—say, that by Dr. Whistler on syphilis—or at the chapters in any of the text-books upon tuberculosis or malignant disease, show how most of these disappear when we start with a distinct or specific cause. It is then an easy matter to trace the steps of the disease in definite order and sequence. When we know more about etiology it is not unlikely the classification of disease will be made upon this basis, and the clinical evidences described under the headings of most of the chapters in our text-books will simply appear as the evidence or symptoms, or sequelæ.

THE EFFECT OF THE STUDY OF ETIOLOGY UPON TREATMENT.

The study of etiology promises to be particularly valuable in the way of treatment. It has emphasized all that has hitherto been written upon the question of hygiene, and the prevention of disease has been made easier by accurate diagnosis. At the last meeting of the British Medical Association at Newcastle, I pointed out the necessity for laboratories in connection with each sanitary centre where practitioners might have the benefit of a diagnosis in the earliest stages of disease, such as diphtheria. It is not to be expected that every practitioner can have the necessary apparatus for diagnosis in doubtful cases. Although the principle of inoculation remained for long one empirical fact, the experiments of Pasteur, and the researches of Koch, Hanken and others would promise something more in the prophylactic treatment of disease. Whether the inoculation of the products of micro-organisms is destined to be of great use in the prevention of specific affections remains yet to be seen. Metschnikoff's experiments would seem to throw a considerable amount of light upon what has hitherto been a great mystery, viz., by what means the tissues are protected from a second attack in constitutional fevers; and Pasteur, Koch, Liebreich and Klebs have tried to modify the virulence of the poison even after the person has been infected by the injection of certain products evolved in the life-history of particular organisms. Doubtless, although much was expected, little has been done in this direction as yet. All these, however, indicate how much is being done by our sanitary officers and experimenters in the prevention of disease.

The theory of the parasitic cause of disease naturally suggested attempts to administer agents which would destroy these active virulent causes. While it is easy to find antiseptic agents to destroy these organisms before entering into the tissues, as demonstrated in the

brilliant results of antiseptic surgery, their destruction within the host is a different matter. Destruction of the parasite, as a rule, involves destruction to the individual cells of the host. In diseases of the upper respiratory tract, therefore, we have to classify all infective diseases which come in two great groups: firstly, those in which we can directly apply antiseptics, say on the surface of the membranes, or within the accessory sinuses; and secondly, those in which the causes have passed into the tissues and are beyond all hope of local treatment. In some cases, of course, both conditions may be present, and the surgeon may find it convenient to remove a local disease where a constitutional is present. In the consideration of the treatment of the first class there are still numerous fields for research open to us. For example, the best antiseptics to use in this connection. Three factors at least have to be taken into consideration in the application of a germicide: firstly, its antiseptic power; secondly, the rapidity of its action; and thirdly, how long this action continues.

It will be found that certain organisms are more readily attacked by a particular germicide than others, and consequently we have to search for the best antiseptic for the production of a particular germ. In practice, however, we must seek for some general antiseptic, because, as I have shown, more than one organism may be at work, as can be seen from the drawings here produced; these are from a case of diphtheria, and the first two drawings show a large number of round cell organisms, which were found to be capable of producing suppuration after cultivation and injection, and in all probability complicated the local conditions in the throat. The other drawing shows that we have to deal with bacillary forms as well. In all such experiments it must be remembered that the results obtained by antiseptics outside the body are quite different from those got when applied to the same organisms within the tissues.

Both from the experimental and clinical points of view there can be no doubt that bichloride of mercury, even in dilution to the extent of one in five thousand, is the most active in power, rapidity, and duration of time. Carbolic acid, from its many good qualities, may be classed next, and particularly on account of the fact that it is less poisonous to the patient where we have a danger of absorption. Boracic acid is not only safe, but also a very efficient antiseptic, especially where there is



danger of absorption. Listerine acts with great rapidity ; and thymol even in the dilution of one to fifteen hundred may also be depended upon as an efficient germicide. The action of the antiseptic varies according to its method of administration, and so we may require to select it in the fluid or dry states. In affections of the upper respiratory tract, therefore, when we are attacking this locally we may be called upon to apply a germicide for many reasons :—firstly, during or after operation to render the parts aseptic if possible ; secondly, where the parts have become septic to cleanse after free drainage ; but there is a third object to which I would give special attention, viz., where we wish to attack a local focus of inoculation, say, in the false membranes of diphtheria. Many agents may be used for this purpose, such as those mentioned above, and also the strong acids, but a great difficulty arises inasmuch as the crypts or cavities do not allow efficient action of the germicide. For some years past I have been in the habit, after explanation to the patient, of excising the tonsils in acute affections with the view of getting the agents properly applied. While I select the example of the tonsils, the same principle applies to the other parts of the upper respiratory tract, and it likewise applies to acute diseases of an infective nature, whether diphtheritic or otherwise. I have not always been able to carry out this plan, because of objections on the part of patients and medical attendants ; but where the operation has been performed, and *where efficient nursing has been at my disposal* to see that the raw surfaces were carefully and frequently attended to, I have seen nothing to deter me from making still further experiments in this direction. Some here may not believe in these being local affections, but some local manifestations of a constitutional state. In any case the principle has this merit, that the agents can be efficiently applied, and I do not see how this can be done where crypts exist in the tonsil, and into which our therapeutic agents cannot be carried. So far as our clinical observations have gone the membrane has been easily controlled upon the cut surface ; there has been no elevation of temperature which one would expect if reinfection took place upon the cut surfaces, nor have there been any contra-indications from the study of the pulse, or the amount of albumen in the urine.

One of the residents in the Glasgow Belvidere Hospital, Dr. Watson, has been making observations upon this line of treatment in diphtheria at my suggestion. No place can be better calculated for the carrying out of such an experiment than the wards of a fever hospital. I have brought with me a preliminary note of the results, and, while his only amount to eleven cases, everything I have stated above has been confirmed, and only two patients out of the eleven have died, and in one of these tracheotomy had been performed. Excision of the tonsils has been recommended in the treatment of acute affections of the throat by Browne and others. If this be recommended, great attention must afterwards be paid to the proper application of suitable antiseptics.

In the second class of disease, unfortunately, our treatment has not yet been very successful, and this remark specially applies to chronic

cases, such as phthisis laryngea. It is hopeless in some cases to expect much good from the scraping out and medication of an inter-arytenoid membrane, and this is easily enough explained by the affection of other organs of the body at the same time. I have given six drawings in a case of phthisis laryngea where the inter-arytenoid membrane was scraped without any beneficial result, and this requires no explanation, because such a widespread affection could not be affected by local treatment. I should be sorry to leave the impression of anything discouraging to the enthusiastic work of Professors Herying and Krause. I have, like others, had good results from local curetting of the parts, just as surgeons have had excellent results from the destruction of disease in the tarsus and carpus in cases where other organs of the body were affected. We must not, however, be discouraged by the fact that constitutional agents have not yet been discovered to combat these affections, because, after all, it is precisely in this that we have the best recent results in surgery. For example, the most serious complications to life have been combated in the brilliant results obtained in the treatment of acute infective diseases of the brain and spinal cord, and we rejoice to learn from time to time of the splendid records of Macewen, Horsley, Lane, and others, in this department. In the same way no one can estimate the amount of deafness which has been obviated by the early removal of hypertrophied and lymphoid structures in the post-nasal adenoid growths, tonsils, etc.; or the alleviation of catarrhal conditions of the respiratory passage, due to old-standing mischief in the accessory cavities, such as the maxillary, frontal, and sphenoidal sinuses.

While we may consider the present to be a surgical era in treatment, etiology has more than ever shown the necessity for careful therapeutic investigations, whether in local or constitutional effects. The three great principles taught from a study of etiology in the treatment of affections in this as in any other part of the body, are, firstly, to remove the cause—this includes all our surgical work; secondly, if we cannot do this, to aid nature in so doing; and, thirdly, to palliate in either of these two conditions. That advances have already been made is seen in the clinics in the various hospitals in this and other countries. Everywhere scepticism exists about the efficacy of old and empirical treatment. Thanks to the efforts of many workers in the study of nasal affections, the application of pigments in pharyngitis sicca has become rare, and this is just as it should be, because our classification into astringents, alteratives, stimulants, and so forth was made when our knowledge of etiology and pathology was very imperfect.

Satisfactory as our results have been, we must never forget that the great majority of workers are at present dealing with the sequelæ of disease. This could not be better shown than by the study of the history of the cases in the recent great work of Professor Macewen on infective diseases of the brain and spinal cord, where we have frequent evidence of old-standing disease in the ear or throat. The same thing prevails in our every-day practice with catarrhs—even the majority of our acute inflammations are exaggerations of slumbering sub-acute or chronic conditions, probably the result of disease as far back as

childhood. However brilliant such results may be, treatment of the remote pathological conditions should not satisfy us, and hence the removal of tonsils without post-nasal adenoids, or this again without the hypertrophies which produce them, must tend to recurrence and perpetuation in a considerable number of cases. In the nasal and buccal cavities, where so much can be hidden in crypts, depressions, and accessory sinuses, we cannot be too careful in our search for pathological lesions; but more than this, our experience teaches us that a large proportion of the mischief with which we have to deal could be prevented by careful nursing and treatment of those suffering from constitutional affections of childhood or adult life. Whether we are in future to have the benefit of constitutional agents capable of destroying these specific organisms or not, no one can say. The history of surgery in the past reveals the only means of treatment open to us at present. It must, however, be evident, with the sanitary officer on the one hand, improvements of early diagnosis, followed by prompt and thorough treatment on the other, that many sequelæ of the most disastrous nature will certainly be obviated in future. The solution to the difficulty unmistakably lies in the study of etiology, and it is for that reason I have chosen this subject for consideration to-day.

In every department we see energetic workers; anatomy, microscopic and macroscopic, is being pursued with an interest and attention never excelled in the history of the past. Physiology has done much for us of late, as we can see from the works of Aschenbrandt, Fick, Block and Macdonald. Experimental physiology has also come to our aid in controlling the observations at the bedside. Although we may have a difficulty in reconciling different opinions, and without committing ourselves to any special view, we record with extreme satisfaction that our knowledge of nervous affections has been greatly enhanced by the works of Krause, Masini, Horsley and Semon. Excellent work on all hands has been done in the fields of pathology and clinical research, and these must be still further enriched by observation, although the study of medicine could never have rested on a satisfactory basis had we had nothing but clinical observation to record. One of the greatest (if not the greatest) triumphs of physical science was the prediction of the existence of a certain planet by the disturbances caused in the movements of other celestial bodies, and its discovery tested the accuracy of previous observations. So in the study of clinical medicine, by the disturbances in the functions we can often infer the existence and, to an extent, the nature of a cause. The greater in number and more accurate these observations are, the surer are we to discover the cause, but after its discovery the facts relating to cause and effect will be explained and harmonized only in as far as they have been accurately recorded.

And now, gentlemen, one thing only remains for me to do, after thanking you for your patient hearing, and that is to take advantage of the rules to request that a meeting should be held during this year outside of London. I have, therefore, much pleasure in inviting the Fellows to meet in Glasgow during this year, and I can at least assure them of a hearty welcome.

LIST

OF THE PRINCIPAL

MICRO-ORGANISMS FOUND IN THE NOSE AND THROAT.

The following micro-organisms were demonstrated by means of photographs and microscopic drawings. They have all been found in the upper respiratory tract, and include the majority of the known organisms of interest there. The pathogenic are of first interest to us, but parasitic and saprophytic forms are included, because a knowledge of them is necessary for purposes of identification. Moreover, the exact pathogenic qualities of these are not yet known, and the life products of all, when given in large enough quantities and under favourable conditions, may be capable of producing disease.

A.—PARASITIC OR SAPROPHYTIC FORMS.

Mouth Bacteria—non-cultivable.

Scraping from tooth, showing round, spiral, rod shapes.

Spirillum sputigenum—almost pure cultivation from human mouth.

Spirochaete dentium, from human mouth.

Leptothrix buccalis—various forms.

„ innominata—Miller's classification.

Bacillus buccalis maximus „ „

„ „ „ „ „ (high power).

Iodococcus vaginatus „ „

Mouth Bacteria—cultivable.

Bacillary forms, various (health), showing spore formation.

Cocci forms, various—cultivations on agar and gelatine.

Ascoccus buccalis—Miller.

Fermentation Bacteria—zymogenic.

Bacillus acid lactici.

Colour-producing—chromogenic.

Cultures of organisms producing red-coloured matter in tubes.

„ „ „ green „ „ „

„ „ „ yellow „ „ „

Not classified above.

Micrococcus prodigiosus.

Sarcinae ventriculae.

Bacterium termo?

Bacillus subtilis.

Fungi.

Spores from upper air passages (aspergillus).

Aspergillus glaucus.

Penicillium glaucum.

Mucor mucedo.

Mucor racemosus.

B.—PATHOGENIC FORMS IN UPPER AIR PASSAGES.

Cultivable for most part.

From sputum—Bacillus crassus sputigenum.—Kreibohm.

Micrococcus tetragenus.—Koch, Gaffky.

- Inflammation —Micrococci in tracheal membrane.
 Suppuration —Staphylococcus pyogenes aureus.—*Ogston*.
 " " albus.
 " " citreus.
 Streptococcus pyogenes.—*Ogston*.
 Varieties mic. pyo. tenuis, etc.—*Rosenbach*.
 Bacillus pyocyaneus.—*Gerrard*.
 " pyogenes fœtidus.—*Passet*.
 Gonorrhœa —Micrococci gonorrhœæ.—*Neisser*.
 Erysipelas —Streptococcus erysipelatosus.—*Fehleisen*.
 Pharyngo-Mycosis—Bacillus fasciculatus, round and other forms.
 Tubercle —Bacillus tuberculosis in sputum.—*Koch*.
 " " tissues of larynx.
 " " lungs.
 " " liver.
 Bacilli of decomposition in sputum.
 Micrococcus tetragenus " "
 Leprosy —Bacillus in tissues.—*Hansen*.
 Syphilis —Bacillus.—*Lustgarten*.
 Rhinoscleroma—Bacillus.—*Frisch*.
 " in capsules.
 Actinomycosis—Actinomyces in tongue.
 Diphtheria —Bacillus (false membrane).—*Klebs-Loeffler*.
 Bacilli cultivations.
 Micrococci in false membranes.
 " and bacilli, impure cultivations.
 Pneumoniæ —Pneumo-bacillus (pneumococcus).—*Friedlander*.
 " in pus.—*Friedlander*.
 " " —*Fraenkel*.
 " in lungs.—*Fraenkel*.
 Typhoid —Bacillus.—*Eberth-Gaffky*.
 Malignant Disease—Psorosperms.

C.—ENTRANCE OF MICRO-ORGANISMS TO TISSUES.

1. Mycelial spores passing through epithelium in living tissues.
2. Development within the tissues.

The investigator may also meet the following by contamination, etc. :
 Achorian schonleinii, trichophyton tonsurans, microsporon furfur, etc.
 Biondi's¹ list includes bacillus salivarius septicus, coccus salivarius septicus, micrococcus tetragenus, streptococcus septo-pyæmicus, staphylococcus salivarius pyogenes. Kriebohm² mentions two non-cultivable forms found in mouth. These have not been included in the above list as many of them are difficult to identify, and may appear under other names by different observers.

¹ "Breslauer Aertzliche Zeitsch.," Sept., 1889, No. 10.

² Flügge, p. 319.

ELECTRIC TRANSILLUMINATION OF THE BONES OF THE FACE

As a Means of Diagnosis in Cases of Disease of the Antrum Highmori.

By HOLGER MYGIND, M.D., Copenhagen.

IN the different papers and discussions on the value of the electric transillumination of the bones of the face as a method of diagnosis in cases of disease of the antrum of Highmore there seems to be one point which has not, up to the present, received the attention it deserves, viz., the question as to what phenomena the transillumination of the *healthy* antrum produces. Most authors have, it is true, examined both healthy and diseased individuals by the method in question, but do not go into details as to the number of cases, age, sex, etc., of the healthy individuals examined, and they have also only spoken in a general way of the results thus obtained.

It seems, however, obvious that a thorough and exhaustive examination of the application of transillumination upon healthy individuals is necessary before we can proceed to estimate its diagnostic value in cases of disease of the antrum.

It is the object of the present article to contribute, however slightly, towards the solution of this important question, by placing before the readers of this Journal the result of a series of observations of the phenomena produced by electric transillumination of the bones of the face in healthy individuals—*i.e.*, individuals in whom a diseased state of the antrum of Highmore could be excluded with as great a certainty as possible. I think I have ensured tolerable certainty by restricting myself entirely to my private patients, whom I have had opportunity of examining thoroughly, and often repeatedly, and also of questioning as to antral symptoms.

I have examined two hundred healthy individuals by electric transillumination of the face. These belonged to both sexes, and their ages varied from two to seventy-six. The grouping in sex and age was as follows:—

	Males.		Females.		Both sexes.
Under fifteen years of age.....	27	.....	21	.....	48
From fifteen to forty-five	46	.....	76	.....	122
Above forty-five	15	.....	15	.....	30
	—	—	—
Total	88	.....	112	.....	200

The lamp used was that constructed by Vohsen,¹ the strength of the current being about eight volts, and I have only relied upon the examination when the wire of the lamp burned with an entirely white light.

In order to produce satisfactory results the following rules must be observed. The individual examined must be in total darkness, as the

¹ "Berliner Klin. Woch.," 1890, No. 12.

least ray of light from without may prevent an exact observation of the phenomena, in particular the transillumination of the pupils.

Further, when the transillumination is but slight, it is necessary to allow the lamp to remain for some time in the mouth of the person examined, since the transillumination of the eye is first observed when the place where the pupils should be has been watched for some time. Finally, it is of importance to discover whether the person examined is wearing artificial teeth with a palate plate, as the plate is a great hindrance to transillumination.

According to my experience, the electric transillumination of the face yields very different results in different individuals.

(a) In thin, slightly-built individuals, *especially females, the transillumination is very intense.* Nearly the whole face glows with a bright red colour, which may be very deep. As a rule, slight crescent-shaped shadows are observed in such cases about a quarter of an inch below the margo infra-orbitalis. These, however, disappear almost entirely on smoothing out the fold which the skin forms here. The transilluminated part of the face is bounded upwards in the centre by the root of the nose, which is often very brightly illuminated, while the tip of the nose remains dark. At the side it is bounded by the margo infra-orbitalis, the lower eyelid, however, being pretty bright. Outwards the transilluminated parts are bounded by the front edge of musculus masseter, and downwards by the chin, which always remains dark. The pupils display a deep red colour which often differs from that of the face, being deeper and darker. The vessels of the retina appear sometimes as distinct shadows. The transillumination of the pupils is more or less intense according to whether they are more or less dilated.

(b) The transillumination is, however, as a rule, not so intense as above described. The fold under the margo infra-orbitalis, together with the layer of fat lying here, in very many cases produces a more or less wide, dark belt. As a rule, the nose is only slightly illuminated, and often only a small part of it—for instance, the one side. No shadow is caused by a hypertrophic condition of the mucous membrane of the nose, unless the hypertrophy is very pronounced; on the contrary, the side of the nose which is the seat of the disease, or in which it is most developed, is often that which is most brightly illuminated. When the one side of the cavity of the nose is narrow, a shadow may, however, be produced on the corresponding side. In this, as in the former cases, there may be a difference in the degree in which the two sides of the face are illuminated, but the difference is seldom great. The transillumination of the pupils is very different in different individuals belonging to this group. Sometimes they are brightly illuminated; sometimes the transillumination is first observed after the place of the pupils has been watched attentively for some time,² or when the person under examination moves his eyes, especially downwards. Altogether, transillumination of the eye is always most distinct when the eyes are lowered. *In many of the persons belonging to this group the pupils remained dark.*

² In some of the persons I examined it was impossible for me to discover the transillumination of the eye for a few moments after the lamp was introduced into the mouth, and that although I knew the position of the pupils and the strength and manner of their transillumination.

(c) Finally, there was a considerable minority who exhibited the phenomena but slightly. This group consisted chiefly of strongly-built men, principally of dark complexion and with well-developed panniculus adiposus. The upper part of the face nearest the margo infra-orbitalis remained dark, the transilluminated parts of the face being generally confined to the sides of the mouth and the upper lip—in some few cases even this was very weak. *In this group the pupils always remained dark.*

As the transillumination of the pupil is, according to Davidsohn,³ the decisive phenomenon so far as a diagnosis is concerned, it is my intention to enter more into detail on that subject. There can be hardly any doubt that the transillumination of the pupil is *principally* produced, as described by Davidsohn, by the light from the mouth penetrating through the floor and roof of the antrum, which latter also forms the base of the orbit, in the front of which the fatty layer of the eye is thin or entirely wanting. There is, however, a possibility that some light penetrates from the nasal cavity into the orbit through the inner wall of the orbit, and that this light, when the bones and mucous membranes are thin, and the eyeball easily penetrated, is sufficient to illuminate the pupil even if no light penetrates the antrum, as would be the case if pus were present in that cavity. Experience will prove how far this conjecture is correct.

In many of the persons examined I found that the transillumination of the two pupils was unequal, sometimes the right, sometimes the left being most brightly illuminated. This fact is, of course, of importance in estimating the diagnostic value of transillumination of the bones of the face. Of still greater importance is the circumstance that in eight cases, of which two were children (brother and sister)—that is, in four per cent. of all the cases examined—the one pupil was distinctly, though slightly, illuminated whilst the other remained perfectly dark. This proves the necessity of a thorough knowledge of the phenomena of transillumination in healthy individuals, as ignorance on this subject may lead to errors in diagnosis when this method is employed.

As above stated, I found that in many cases the pupils were not illuminated. Davidsohn's statements lead to the supposition that this phenomenon is quite exceptional. A closer investigation proved that not less than forty-one—that is, about one-third of all my cases—exhibited perfectly dark pupils under transillumination of the bones of the face. I am quite prepared to hear the objection raised that my lamp has not been sufficiently powerful. I can only state that I have used the lamp constructed by Vohsen, an ardent supporter of transillumination, that I have always used it burning white, also that I have not spared either time or trouble in observing the phenomena of transillumination as accurately as possible.

As Davidsohn was of opinion that there was a connection between the shape of the palate and the transillumination of the pupils—he found that the palate, in cases where the pupil remained unilluminated, was high, approaching an ellipsis or ellipsoid figure—I determined to pay particular attention to this matter. In several of these cases, when the pupils remained dark the palate was certainly higher than is normal, in some

³ "Berliner Klin. Woch.," 1892, Nos. 27 and 28.

few cases even very high with steep ascending sides. In several persons, however, belonging to this group the structure of the palate was normal, and in some it was remarkably low. On the other hand, I found individuals with high, indeed very high palates, whose pupils were distinctly illuminated. It is, therefore, not so much out of the way to suppose that the shape of the palate is not so important a factor as Davidsohn would have us believe, but that other circumstances may prevent the electric light from penetrating the pupils during transillumination of the bones of the face.

On taking into consideration the various media through which the light from the lamp placed in the mouth can penetrate into the eye, the following circumstances present themselves for our attention :—

(1) *The consistency of the mucous membrane of the palate*; this varies probably but slightly in different individuals.

(2) *The thickness and structure of the bones of the face* would seem *a priori* to be, in all likelihood, an important factor, as it seems reasonable to suppose that thin and lightly-constructed bones would prove better media for the passage of the light than thicker and more compact structures. Further, it is possible that other physical conditions in the bones may affect the passage of the light. That these circumstances are really of importance would seem to be proved by a closer consideration of the frequency of non-illumination of the pupils in the various groups of individuals which these investigations embrace. Neither pupil was illuminated in the following number of individuals of either sex, and belonging to the three classes of age :—

	Males.		Females.		Both sexes.
Under fifteen years of age.....	16	.....	6	.....	22
Fifteen to forty-five.....	23	.....	18	.....	41
Above forty-five	11	.....	10	.....	21
	—		—		—
	50		34		84

The above survey shows that while *thirty per cent. of the females examined*[†] *exhibited non-illumination of the pupils, this was the case with sixty-two per cent. of the males examined.* The difference found on comparing the younger with the older individuals is still greater. Thirty-seven per cent. of the individuals examined under forty-five years of age exhibited non-illumination of the eye, while seventy per cent. of those over forty-five years of age exhibited this phenomenon. Finally, this survey shows that a negative result is least frequently obtained in females between fifteen and forty-five years of age (twenty-four per cent).

It would seem, in my opinion, that the influence of sex and age (particularly the latter) can be naturally explained by the difference in the thickness of the bones in the two sexes, and in the difference in their texture in the earlier and more advanced periods of age.

(3) *The consistency of the mucous membrane of the antrum of Highmore*, and other physical conditions of that membrane, has probably

[†] No importance is attached, as a matter of course, to the absolute value of the figures found, but only to the *considerable* difference between the groups with regard to the non-illumination of the eye.

some influence upon the passage of the light from the mouth to the orbit, though this could not, of course, be proved by these investigations.

(4) *Abnormalities in the size and shape of the antrum* play, no doubt, an important part in the transillumination of the bones of the face. It is evident that the wider the surfaces of the antrum are which face the buccal cavity and the orbit, the greater quantity of light will, *ceteris paribus*, penetrate into the bulbus oculi, while, on the other hand, the opposite in conjunction with increased height of the antrum will diminish the quantity of light which passes into the eye. The shape and size of the antrum of Highmore are, as is well known, very different—a circumstance which has been exhaustively treated by Zuckerkandl,⁵ who has given an account of the various forms of contraction of the antrum and their causes. Although these contractions can, according to Zuckerkandl (*loc. cit.*, p. 117), be recognized by consideration of the shape of the face and the condition of the nasal cavity, and, according to Davidsohn, by observing the shape of the hard palate, I must admit that I have not, as a rule, been able to do so in the cases which I investigated. But even if this were the case, it is not probable that it would be of importance in forming an opinion as to the diagnostic value of the symptom in question, viz., the dark pupils, since (as mentioned above) this may be the result of other causes.

(5) *The consistency and extent of the fatty layer of the orbits* are probably also important factors in transillumination. It is probable that the amount of light which reaches the bulbus oculi must be diminished the thicker the fatty layer is and the nearer it is to the margo infra-orbitalis. It is, therefore, worthy of note that the phenomena of transillumination were weaker in those individuals examined by me whose panniculus adiposus was well developed.

(6) *The physical condition of the bulbus oculi* itself is also, in all probability, a factor in transillumination; for instance, the thickness of the *apple*, the quantity of pigment, etc.

It would seem, then, from a theoretical point of view, and especially after the practical results described above, that all the above-mentioned circumstances must be taken into consideration in forming an opinion as to the phenomenon which is present in a considerable minority of the cases examined by electric transillumination of the bones of the face, viz., the non-illumination of the eye. As (according to my experience) these influences, as a rule, make themselves felt without it being possible to declare the non-illumination as being the result of one in particular, or of a combination of several, the result naturally arrived at is that the non-illumination of the eye cannot at present be considered as being of decisive diagnostic value, as it is stated to be with great emphasis by Davidsohn. This phenomenon cannot only be caused by pus in the antrum of Highmore, but also by other circumstances which need not be pathological.

The value of transillumination as a certain diagnostic method would seem, then, to depend upon the question as to whether the illumination

⁵ "Normale und pathologische Anatomie der Nasenhöhle und ihrer pneumatischen Anhänge." Vienna, 1882, p. 101 and following.

of the eye is a reliable sign of the absence of pus in the antrum of Highmore. This can only be decided by a thorough investigation of numerous cases of empyema of the antrum. Should it be found that pus in the antrum always prevents the electric light from penetrating from the mouth into the eye, then this method will always be a valuable means of diagnosis, although only capable of giving a negative result.⁶ Should, however, it be found that the presence of pus in the antrum does not prevent the electric light from penetrating, then this method is of no value as a thoroughly *reliable* means of diagnosis. In any case, the circumstance that one can, by introducing an electric lamp into the mouth, illuminate the nose and its adjacent cavities will always give transillumination of the bones of the face importance as a means of investigation. It remains for future investigators to decide its importance as a method of diagnosis of empyema antri Highmori.

RETROSPECT OF THE YEAR 1893.

DISEASES OF THE PHARYNX, PALATE, TONSILS, &c.

A SURVEY of the contents of the JOURNAL OF LARYNGOLOGY for 1893, relating to the special diseases of which it treats, emphasizes the need for such a special work as this. From every part of the world all that is worth recording is found in its pages, which as a reference serve to keep readers abreast of the progress of the times in these special subjects. Its founders have therefore to be congratulated on its success, which in no other year has been better sustained than during 1893.

The elaborate and exhaustive reports of British (Home and Colonial), American and Continental Societies and Congresses form a striking feature, and represent what is often most interesting and invaluable to the readers of its pages.

DISEASES OF THE PALATE AND UVULA.

In a communication of some interest, Carpenter (London) records several cases of facial paralysis of rheumatic origin, in one of which there existed paralysis of the palate, supposed by the author to be due to implication of the petrosal branches of the facial above the geniculate ganglion. The point is well sustained, although it is opposed to the views of Horsley, Jackson, and Gowers, who maintain that paralysis of the palate is produced by disease at the side of the medulla oblongata, damaging the hypoglossal and spinal accessory nerves.

Mr. Lennox Browne refers to a case of palatal paralysis, associated with defect in vision after diphtheritic rhinitis.

Malformations of the palate, consisting in hiatus in the anterior pillars,

⁶ Should future investigations confirm my experience, viz., that in no case of *vivid* illumination of the face (as described above) does the one pupil remain dark while the other is illuminated (that is, in healthy individuals), this phenomenon, when exhibited in thin, slightly-built individuals, might give a positive result, viz., be a proof of the presence of pus in the antrum.

are noted by Brockant (Ghent). Bonnier refers to an opportunity he had of watching the mechanism of deglutition and opening of the Eustachian tubes in a patient whose palate had been destroyed by disease. The tubes opened during deglutition and the drum participated in the pharyngeal vacuum, which the action of the palate could not explain in this case. By the approximation of the nasal alae to the septum during deglutition a vacuum in the whole naso-pharyngeal space was produced when the act of swallowing was performed. Thus the tubes could open during the ordinary phenomena of yawning and deglutition in the absence of the peri-staphylinæ and palatine aponeurosis. A vesicular eruption on the palate is claimed by Shelly to be frequently observed in the early stages of influenza, and may be looked upon as a reliable symptom of the disease. Lublinski reports a case of papilloma, the size of a cherry, situated on the edge of the hard and soft palate. Syphilitic ulceration of the palate is referred to. Attention is drawn to the fact that wide-spread destruction may rapidly take place unless radical treatment is applied to the early site of the ulceration, which is on its posterior aspect, and therefore concealed from view. It is necessary, therefore, in throat syphilis to carefully scrutinize the state of the post-nasum, and, if crust formation is there present, to remove this and apply suitable remedies. When perforation of the palate has taken place, much may yet be done in the way of obviating wider destruction by assiduous attention to the post-nasum—*e.g.*, by swabbing with Lugol's solution, or a four per cent. solution of chromic acid.

An interesting paper by Cartaz will be found on complete adhesions of the arch of the palate and pharynx. In most instances a result of syphilis, yet scrofula, diphtheria, lupus, and rhinoscleroma have been cited as occasional causes. The functional disturbances are fully described—speech, deglutition and respiration being profoundly affected. It is easy to detach the parts, but difficult to preserve the opening through these indurated cicatricial masses. [In the worst cases of adhesions a minute aperture is found in the middle line, through which a probe can be passed; working laterally from this with a bistoury, free separation is made. To keep the palate free, a triangular plate of vulcanite, suspended between the parts by threads drawn through the nose, is worn without much discomfort to the patient.—REP.]

UVULA.

From elongated uvula several symptoms of unusual occurrence are referred to and worthy of repetition. Parker refers to vomiting suffered from by a singer for two weeks, where amputation of the uvula brought about recovery and improvement in the use of the voice. The reviewer met with a case of inspiratory stridor in a man aged fifty-six, who possessed an extremely elongated uvula. Uvulotomy at once removed the cause of the irritation and obstruction in the larynx.

Papillomatous growths of the palatal arches and uvula are referred to by Wagner as usually found on the posterior pillars.

Berens found in three thousand throats eighty-four cases where the uvula presented some anomaly—

Completely separate	2
Worm-like shreds	8
Supernumerary	4
Deeply cleft	14
Attached to other parts	2
Absence	2
Fish-tail shaped	39
Pendulum	2
Hypertrophied.....	11

He does not consider the uvula acts as a dropping stone to keep the epiglottis and larynx moist, as in several cases where the uvula was absent no noticeable dryness was observed.

PHARYNX.

Pharyngeal reflex neuroses are referred to, and diverse origins enumerated. As a frequent cause, hyperplasia of the lingual tonsil is referred to by Lennox Browne, Bauer, &c. Mayo Collier describes an interesting case of reflex stricture of the œsophagus, which may here be referred to. This occurred in a patient suffering from cancer of the liver. Swallowing was impossible, although an œsophageal bougie could be readily passed into the stomach. Want of appetite is a prominent symptom in cancer of the liver.

Bewley describes a case of reflex pharyngeal spasm, ending fatally in six days. There was hiccough at irregular intervals, and swallowing caused great distress. *Post-mortem* the pharynx, larynx and œsophagus were found normal. Indefinite cerebral lesions were noted, while clinically it was considered to resemble a violent chorea of the muscular apparatus of the pharynx, larynx and diaphragm.

The reviewer can refer to a case which resembles, in some respects at least, Bewley's case. The patient, a male aged thirty-five, suddenly found himself, six weeks ago, unable to swallow, and in the interval since has lost two stones in weight. He is extremely weak, and suffers from insomnia. Pulse, 180; valvular disease; liver, normal. He complains of being unable to perform the first act of swallowing. The saliva overnight accumulates on the back of the throat, and on awakening he has the greatest difficulty in bringing it up. The posterior pillars of the fauces are greatly swollen and injected. The œsophageal bougie can be readily introduced into the stomach. The tongue can be protruded normally, and articulation is perfect. No evident paralysis of palate, motor or sensory. Swallowing still difficult. Strength diminishing.

Meyjes, in an article on the treatment of chronic catarrh of the pharynx, points out that the cause of the discomfort on speaking must be sought for (*a*) in the lateral bands of granular pharyngitis; (*b*) in enlargement of the tonsils, or (*c*) in the lingual tonsil. Konitzer gives an account of a hairy pharyngeal polypus hanging from the anterior pharyngeal wall. This consisted of fat, covered by outer integument. Pharyngomycosis is several times referred to. An interesting case is alluded to by Dundas Grant, who recommends the galvano-cautery. Cheatham also refers to this condition, and recommends for removal (which is

difficult) forceps, curette, or galvano-cautery. Garel attributes its presence and distribution to catarrhal conditions of the pharynx. In order of frequency the sites are as follows—the tonsils, base of the tongue, posterior and lateral walls of the pharynx, faucial pillars, naso-pharyngeal vault, and nasal fossæ. Small points, mushroom-like tufts, and yellow plaques are the forms assumed. It is to be contra-distinguished from lacunar tonsillitis, pultaceous angina, herpetic angina, and diphtheria. A moderately strong solution of chromic acid is generally effective in ridding the parts affected of the leptothrix, or whatever the true parasite of this affection is. An interesting case of cicatrix of the pharynx, involving the epiglottis in a child, arising after a severe scarlatinous sore throat, is referred to. Roswell Park mentions a case of malignant pharyngeal polypus, where Senn's recommendation—to isolate the trachea, and pass a rubber tube over the balance of the neck—was adopted. Venous hæmorrhage was excessive, and the patient died from shock next day. A case of primary tuberculosis of the pharynx is noted by Köster, rebellious to treatment. There were no pulmonary changes. Heryng, in a similar case, but where pulmonary and laryngeal implications were present, cured the pharynx (lactic acid, curettement) in one week.

TONSILS (FAUCIAL).

An extensive literature, as usual, is found devoted to the tonsils, from which, however, nothing strikingly new can be extracted. All the principal diseases of the tonsil have received notice—viz., acute and chronic inflammations, syphilitic and tubercular lesions; and tumours of various kinds are fully recorded. Sallard divides acute inflammations of the tonsils into—

Non-suppurative tonsillitis.

True " " (parenchymatous).

Peritonsillitis (pharyngeal and lingual).

Anomalous forms of tonsillitis.

Generally speaking, he considers tonsillitis as a general infectious disorder, a fever of which the angina is only a manifestation. Quaife, on the other hand, finds in an irritation applied to the mucous membrane surrounding the tonsil a cause of tonsillar disease, just as disease in the intestinal mucosa induces disease in Peyer's patches. Radcliffe attempts to prove that there are two conditions underlying enlarged tonsils. In one the hypertrophy is that of dilatation without consolidation, with enlarged blood-vessels, where tonsillotomy may cause severe hæmorrhage, and occurs in children. In the other (principally adult form) the enlargement follows repeated attacks of inflammation in a healthy subject. Here there is induration, and tonsillotomy is safe as regards hæmorrhage.

Newcomb advises salol in acute tonsillitis and incision if peri-amygdalar infiltration has set in—incision high up in front of and above the pillars, even if there is no pus, which rarely occurs before the fourth day. Leland treats recurrent tonsillitis by dividing the tissues between the crypts by knife, scissors, and hooks, and so reducing its size. Ruault uses a specially devised pair of cutting forceps with which to reduce the

size of the tonsil piecemeal. Where tonsillotomy in the usual way is impracticable such a procedure may be acceptable, and forms an advance on galvano-cautery, especially if the diseased tonsil is of any size. Even with these forceps more than one sitting is found necessary. Lediard (Carlisle) recommends a curved probe, pointed bistoury, and vulsellum (Symes' method) for the removal of enlarged tonsils on the grounds that the guillotine may be too small to encircle large growths, and that some mouths are too small to receive the guillotine into position. [These objections are true in fact. In patients where the ramus of the lower jaw is unusually short a difficulty is found in getting the ring of the guillotine on to the base of the tonsil, and the cut being made a different level, part of the diseased tonsil is left behind to re-inflame perhaps and always to hamper the action of the faucial pillars. In this condition we find a cause for unsuccessful tonsillotomy.—REV.]

Three original cases of calculus of the tonsil are mentioned by Lecocq : (1) in the sub-tonsillar fossa found in the fibro-muscular wall of the pharynx without ulceration ; (2) one in the same region with abscess ; (3) calculus of tonsil, abscess and ulceration. Several notices of hæmorrhage after tonsillotomy are observed. Butts describes a forceps for controlling this, of the usual design, while Daubarn advises surrounding the bleeding surface with a strong purse-string ligature, placed *in situ* by a large semi-circular needle, removing the ligature in from twenty to twenty-four hours. Wingrave's allusion to shrinkage of the tonsils as a complication of ozæna is worthy of note, so that further experience may be brought forward to establish the truth of the association.

MALIGNANT GROWTHS OF THE TONSILS.

Macintyre, after describing two cases of malignant disease of the tonsil, one an epithelioma, the other a sarcoma, both of which were removed *per oram*, strongly advocates operation through the mouth, especially when the growth is early recognized. Barker and Grant support the contention. Incision in the mucosa is carried round the tonsil, and the growth is then enucleated. The majority of operators adopt an external incision or incisions ; several are found to agree that a single incision from the lobe of the ear to the hyoid bone affords sufficient room for removal of a malignant tonsil. The use of lactic acid injected into a sarcomatous tonsil was found by Ingals successful in arresting the course of the growth, the pain, and discharge. Parenchymatous injections in tonsillar enlargements are recommended by various authors, *e.g.*, carbolic acid, chlorine water, iodine, etc.

Mackenzie (Edinburgh) gives a list of two hundred and thirty tonsillotomies with interesting statistics.

Newman (Glasgow), in book form, gives a most valuable contribution to the study of new growths of the tonsils.

TONSIL (LINGUAL).

A gradually increasing literature is observed, directed towards the several pathological states of the lingual tonsil and their treatment. While examining the pharyngo-glossus it is important at the same time

to scrutinize the borders of this region, for, as pointed out by Macintyre, cracks, fissures, and tubercles causing pain shooting up to the ear, have their site there and require treatment. While nothing new is observed in the communications under the above heading, yet they have been useful in diffusing more widely a knowledge of this most important condition. Several present original observations of interest. Pharyngeal tenesmus is referred to by Lennox Browne. Joal, in three cases, observed spitting of blood, which was seen with the laryngoscope to come from small ulcers and vascular ruptures, situated on the hypertrophied lingual tonsil.

Garowitsch describes a condition of acute inflammation of the lingual tonsil, associated with a similar condition of the epiglottis. Dyspnœa is associated with this state. With the laryngoscope the lingual tonsil and epiglottis are observed enlarged and reddened. In rare cases, inflammation of the lingual glands follows. The majority of contributors rely for treatment of lingual tonsillar hypertrophy upon the galvano-cautery. The possibility both of hæmorrhage and absorption of septic matter from the cautery wounds is to be kept in view.

ADENOID VEGETATIONS OF THE NASO-PHARYNX.

The majority of authors agree that the disease is not scrofulous, and is often observed in patients without any other sign of scrofula, but sometimes both affections are combined. An important point is that tubercular bacilli have been found in these growths, although caseation as a result has never been observed. No new observation is discovered as to the etiology of these growths. Inflammation and catarrh here, as in the case of the other lymphoid structures surrounding the pharynx, are no doubt effected by similar causes. The loose investiture and want of a capsule permits of freer growth, and freer absorption from it by the lymphatics, in the case of injurious products being lodged in the substance of the growths. This facility accounts for the constant association of cervical adenitis and adenoids.

Important discussions on adenoid vegetations of the naso-pharynx at several centres. At the Australasian Medical Congress, held in Sydney in 1892, Drs. Barrett, Webster, Hamilton and Quaife contribute largely to the literature of the subject, and each refers to the prevalence of these growths amongst individuals at the antipodes. From statistics given by these authors the same conditions are found to hold as amongst a home population. The information is interesting, and aids in elucidating or narrowing down the etiology of post-nasal growths. We have no reason to suppose, from the facts these authors adduce, that climatic influences are at work in their causation, and are brought back to causes that are pretty generally recognized—viz., inherent vulnerability on the part of individuals, and insanitary conditions in their midst. Throughout Australasia precisely the same complications of the condition appear to be met with, while the treatment carried out follows closely on the measures adopted in Europe.

At a discussion over a paper read by Edmund Owen on post-nasal growths in children, at a meeting of the Harveian Society of London,

British thought on the subject, and methods of treatment, were fully set forth.

Owen relies upon the facies adenoidea as sufficiently diagnostic, and recommends chloroform with the hanging head. The finger suffices for the majority. Butlin lost one case in seven hundred and fifty operations. Lennox Browne dwelt upon the association of enlarged tonsils and adenoids, and referred to the association of laryngismus, barking cough of puberty, pertussis, granular pharyngitis, catarrhal laryngitis, and even laryngeal growths, with adenoids. Hovel prefers the forceps under an anæsthetic for removal. Spicer referred to concomitant intra-nasal conditions requiring treatment. Semon drew attention to the influence of obstruction upon general health, mental development and the formation of the face, the danger of ear complications, and the liability to and seriousness of infectious diseases, especially diphtheria and scarlet fever, in the presence of these growths. Finger-nail procedures he did not countenance. Milligan considers naso-pharyngeal adenoids a local manifestation of a dyscrasia akin to scrofula, and responsible for at least fifty per cent. of catarrhal diseases in childhood. He further strongly advocates their removal in the presence of recurring deafness and ear-ache. Wingrave, in considering the question of anæsthesia in the removal of adenoids, is strongly in favour of nitrous oxide anæsthesia, during which at the same time the tonsils may be removed. As a cause of epistaxis in childhood, Drinkwater instances adenoids—a fact which the reviewer can corroborate from his own experience. Another observer recognizes the presence of adenoids in children as the cause of a purulent discharge from the nose at that age.

THE TONGUE.

Isolated cases of subjective sensations in the mouth, especially in women, occasionally come before the practitioner for treatment. Pain and abnormal sensations are experienced in the tongue, although no ostensible factor of production is present in the organ. Antipyrin is of some use, as well as mouth washes of boracic acid, chlorate of potash, etc., after which the tongue can be painted over with Lugol's solution.

A case of ulcer of the tongue in a syphilitic subject, much aggravated by the abuse of tobacco and spirits, is quoted, where the curette was freely used to rid the surface of effete products first of all, and then the application of the galvano-cautery to stimulate the ulcers towards repair, and abolish pain by destroying terminal nerve twigs. The use of tobacco and spirits was prohibited, and the diet restricted to milk food. A mouth wash of boracic acid, to be used after meals and during the intervals, was prescribed. The treatment was successful in curing the condition—which had lasted for four years, rebellious to all procedures—in fourteen days. A chancre of the tongue of characteristic appearance, accompanied by enlarged glands and followed by secondary symptoms, is reported by Eustace (Beluchistan), who also refers to a case of phagadenic ulceration of the tongue, which destroyed the organ down to the phrenum.

Two cases of idiopathic inflammation of the tongue are referred to. In one case leeching was effective in reducing the swelling; in the other,

where the organ protruded beyond the lips, its size was reduced by the excision of a triangular piece of tissue, and the edges brought together.

A case of successful treatment of epithelioma of the tongue by electrolysis is fully reported by Draispul, of St. Petersburg. The disease presented itself in the form of an ulcer on the right side of the tongue, with enlarged painless glands on the right side of the neck. A piece of tissue removed showed the structure of an epithelioma. In six sittings the diseased area was destroyed by electrolysis. The glands in the neck disappeared without treatment, and eleven months after the tongue was sound.

DIPHTHERIA.

This immense subject has a correspondingly extensive literature devoted to its consideration and treatment. The bacillus which Klebs discovered and Loeffler familiarized us with is found practically to be difficult of recognition, and yet at this period on its presence alone must the diagnosis of diphtheria be made. A considerable proportion of pseudo-membranous and exudative inflammations of the throat and upper air passages commonly considered as diphtheria, and having the anatomical appearances found in diphtheria, are not true diphtheria; *vice versa*, cases often wanting in the diphtheritic appearances turn out afterwards to be diphtheria. It would be well, therefore, if the health departments in our midst put in force the practice of the Health Department of New York, which makes use of bacterial cultures for diagnosis. The physician in attendance is furnished free of cost with a culture tube and swab, and with the simple directions necessary for their use, at any of the druggists whose addresses are given in the circular. The diagnosis will be ready in every case by noon the following day. Cases of false diphtheria are not attended to by the department. True diphtheria comes under the regulations covering contagious diseases.

Nowhere is the general practitioner more at fault than in the diagnosis of cases of membranous sore throat. Follicular tonsillitis in severe forms is put down as diphtheria, families are disturbed beyond measure, drains are dug up and overhauled, and the physician comes off with flying colours after the recovery of three or four of a household without a fatality.

Sanitary authorities, generally speaking, agree that diphtheria and its prevalence is not influenced so much as typhoid sickness and death-rate are by improved sanitary arrangements. In the face of the utter uncertainty from this source, prevention is to be aimed at. The disease is infectious, therefore let the diagnosis be made at once in the laboratory. Systematic examination of children at schools where diphtheria is present ought to be made compulsory.

Koplik refers to forms of true diphtheria which simulate simple catarrhal angina. In cases without membrane Klebs-Loeffler bacilli were found. Other cases of diphtheria without characteristic local manifestations may resemble angina, so that clinically, from mere inspection, it is impossible to say whether they are diphtheritic or not.

It would be difficult, and perhaps an unnecessary task, to enter into the various methods of treatment suggested by various authors; besides,

nothing new is to be found to warrant any such detailed reference. Chromic acid is somewhere mentioned as a local application ; its active diffusible properties favour its use in this case.

SUB-MAXILLARY GLAND.

Several cases of calculus in Wharton's duct are referred to ; Robertson records a case met with in a bushman. The patient presented a large quadrilateral swelling under the right lower jaw ; inside the mouth, under the tongue, a breach was observed in the mucous membrane of the floor of the mouth, through which a stone was readily felt and seen. After enlarging the aperture with the aid of an elevator, the calculus was removed, and found to be the size of a small walnut. It weighed two and a half drachms. Mumps of the sub-maxillary gland is recorded by Wertheimer, in a case of epidemic parotitis, the parotids being healthy. Wacker also refers to contagious swelling of the sub-maxillary gland.

It would be an easy matter to add to the above brief review, so elaborately and scientifically are many of the subjects under discussion rendered. What has been said represents a mere gleanings, necessarily confined within limits, of the valuable store of literary material devoted to these special subjects contained in the volume of the *Journal* for 1893.

Wm. Robertson.

NASO-PHARYNX.

DURING the past year there has been a fair sprinkling of cases and other work done in this region, but by far the larger proportion are of no great interest, and there is such a lack of original work that one arrives at the belief that we have reached the end of our tether, for the present at all events. Adenoid vegetations have received a large share of attention, and discussions have been frequent, but again nothing new has been brought forward ; the respective advocates of curette, forceps and finger-nail have had their opinions well ventilated, and have left us where we were, though nitrous oxide seems to be coming forward as an anæsthetic for this operation and is very well spoken of, its great disadvantage to most being the short period of anæsthesia. Another death from secondary hæmorrhage after removal of adenoids is reported from America, making the fifth from all sources, but as there was no autopsy we are none the wiser as to its usual cause. Dionisio reports a case of enuresis cured by removal of post-nasal growths.

Donath confirms the observations of Stiede regarding the thickening frequently (twenty-two per cent. Næcke) occurring amongst all persons of the palatine suture, sometimes broad and sometimes narrow, always symmetrical, probably rachitic in origin, and more common amongst criminals and the insane.

Good results are reported of the lactic acid treatment of palatine tuberculosis.

Kenates gives a new method of operation for cleft palate, by which means he lengthens and broadens the velum and uvula. It consists in piercing the uvula with a two-edged knife, and forming a flap extending on

both sides to the border of the hard palate ; and instead of dividing the tensor palati he divides the mucous membrane on the upper surface close to the edge of the hard palate.

Annandale gave a very admirable and exhaustive lecture on harelip and cleft palate, but it will not serve any useful purpose to quote it here ; it should, however, be read *in extenso*.

Coming to pharyngo-mycosis, the treatment which gives the best result is destruction by the galvano-cautery ; tobacco smoke has also been recommended. This mycelium is usually termed leptothrix—in actual fact, however, it is almost, if not quite, invariably a gladothrix ; the origin of this form of disease has not been proved, though it is usually ascribed to water.

There have been several cases of removal of malignant disease of the tonsils reported, both carcinoma and sarcoma. Raymond Johnson ligatures the carotid previous to removing a sarcoma of the tonsil by the external method. Chavasse, in his lecture on "Lateral Pharyngotomy," enumerates, as symptoms of malignant disease of the tonsil, pain, salivation, dysphagia, hæmorrhage, enlargement of tonsil, invasion of anterior pillar early, early enlargement of glands, and says males more frequently suffer from it than females, and the left side is more frequently attacked. Bulkley has collected fifteen cases of chancre of the tonsil out of two thousand cases, the right being more often the seat of the lesion. For acute tonsillitis, Von Ziemssen recommends parenchymatous injections of seven millimètres of a two per cent. solution of carbolic acid ; he says that microbes may be regarded as the normal habitants of the tonsillar crypts, but are only harmful when the epithelium is not healthy. A death is reported of a coloured woman from the rupture of a tonsillar abscess into the larynx.

Major takes a cast of the jaw in cases of empyema of the antrum of Highmore, and welds a gilt drainage tube into a tooth plate made on ordinary dental principles. The presence of pus around the opening of the antrum and over the posterior half of the middle turbinated bone is said to be a valuable aid to the diagnosis of this disease in the antrum, and Garel notes the fact that in empyema the perception of light in transillumination is lost on the affected side. In diseases of the sphenoidal sinus Schäffer distinguishes between acute and chronic inflammation ; for the former he gives bulging of the wall, or abnormality of secretion, headache, vertigo and frontal pressure ; for chronic, broadness and an erysipelatous aspect of nose, hyperplasia of the nasal mucosa, pharyngitis sicca, polypi and tonsillar hypertrophy. Moure adds, for chronic disease of these cavities, chronic pain in the back of the orbit and back of the neck, and collection of pus between the septum and posterior half of the inferior turbinated bone, and recommends in catheterism passing the instrument in the middle meatus close to the septum.

R. Lake.

LARYNX.

It is with feelings of gratification that laryngologists will look back upon the work of the year which has just sped. Each year increased knowledge of the etiology and pathology of diseases of the larynx, and new and improved methods of treatment, do much to assuage the sufferings of those affected with diseases of the upper respiratory passages. It is with feelings of pleasure also that all those interested in the welfare and the progress of this department of medicine will view the increasing importance attached to the study of laryngeal disease. The directors of the Glasgow Royal Infirmary, of the Royal Infirmary of Liverpool, and of the Bristol General Infirmary are to be congratulated upon their enlightened policy in creating new departments at their respective institutions for the study of, and for clinical instruction in, diseases of the throat and nose. Such a wise and judicious step is worthy of imitation in many of the other centres of the United Kingdom.

Seibert ("Arch. of Pediatrics," Nov., 1892) has contributed a valuable article upon the occurrence of broncho-stenosis in children. The condition, he remarks, resembles at times asthma and emphysema, at other times acute laryngeal stenosis. He recognizes a form of syphilitic stenosis where cicatrices press upon the bronchial tubes and occlude them, and where the internal administration of iodide of potassium is useless. In other forms, due to syphilis, iodide of potassium and inunctions of mercury produce speedy improvement. An interesting communication was presented to the Laryngological Society of Paris (July, 1892) by M.M. Sabrazes and Freche, upon the histological structure of "singers' nodes." They find that they are due to limited hypertrophies of the epithelium and mucous chorion, sometimes one, sometimes the other predominating, generally both taking part in the thickening. The etiology and treatment of pachydermia laryngis has been discussed by several authors. McBride ("Edin. Med. Journ.," April, 1893), in an interesting article, gives the following points as of use in the diagnosis of pachydermia.

1. Swelling arising gradually without any very definite margin so far as shape goes (although the colour is distinctly defined).

2. The colour is distinctly defined, being of a whitish-grey, with just a tinge of pink.

3. The outline is smooth or finely granular, with sometimes a furrow or cleft.

Kuttner ("Virchow's Archiv," Bd. 130, Heft 2) believes that the so-called "dellen" are caused by the pressure of the two processus vocales. Microscopically there is a marked resemblance to carcinoma from the existence of epithelial nests and micro-cellular infiltration.

In the treatment of pachydermia, Moll (Soc. of Laryng., Paris, May, 1893) advocates the employment of electrolysis.

The writer (JOURNAL OF LARYNGOLOGY, Aug. 1893) recorded a case, occurring in a girl aged twenty-one, where the characteristic appearances were seen at the posterior extremities of the vocal cords.

At a meeting of the Laryngological Society of London (April 12, 1893), Dundas Grant showed a patient suffering from an angioma-tous tumour of the vocal cord. The tumour was about the size of a hemp seed, and was attached by a broad base to the edge and upper surface of the vocal cord. The voice was not much affected.

Poyet (Soc. of Laryng., Paris, May, 1893) reported three cases of sub-mucous hæmorrhage of the vocal cords. In these cases also there was very slight affection of the voice.

Chappel ("Med. Rec.," Jan. 7, 1893) reports a case of eversion of both laryngeal ventricles, with a new method of treatment. The accident occurred to a woman aged forty-eight, during a severe fit of coughing. Intubation gave relief to the dyspnœa, but as it could not be kept up the ventricles were removed by means of a laryngeal guillotine of the ring form, with an outward convexity.

Semon ("Lancet," March 11, 1893) strongly advises the internal use of pure creosote in the treatment of laryngeal tuberculosis. He rubs lactic acid into the ulcerated areas with cotton-armed probes, and granulation tissue he scrapes away with Krause's or Heryng's curettes, previous to the application of lactic acid.

Heryng (JOURNAL OF LARYNGOLOGY, Aug., 1893), in an able paper upon the surgical treatment of laryngeal phthisis, remarks that the harmful theory of the incurability of laryngeal phthisis is now exploded. The main indications in the treatment of laryngeal phthisis are (1) to relieve suffering, (2) to prolong life, (3) in favourable but exceptional cases to bring about perfect healing in the larynx, and a restoration of its functions. Curettement is indicated specially in cases of circumscribed, slowly-developing tubercular infiltrations, even although they show no tendency to break down. The object here is to prevent the further inevitable destruction of a vital organ by destroying the centre of infection.

Castex (Soc. of Laryn., Paris, May, 1893) considers surgical intervention in laryngeal phthisis justifiable in the following conditions :—

1. Where medical treatment is inefficient.
2. Where indicated by local conditions.
3. When not contra-indicated by the general condition.

Piniaczek ("Deutsche Zeitschrift für Chirurg.," Bd. 36, Heft 3 and 4) contributes an important paper upon laryngo-fissure. He advises the performance of a preliminary tracheotomy some days before the laryngo-fissure. The operation should only be performed if endo-laryngeal operation is impossible, as in broad and deeply-seated benign neoplasms of the larynx; malignant neoplasms, as long as it is possible to remove them without extirpation of the larynx; stenosis which cannot be cured by systematic endo-laryngeal dilatation; chondritis in prior hypertrophica, where the extirpation of the hypertrophied mucous membrane is indicated; perichondritis and fracture of the larynx for reposition of the fragments; impacted foreign bodies, and very rarely in tuberculosis.

Pitts (JOURNAL OF LARYNGOLOGY, Oct., 1893), in discussing the treatment of compound laryngeal papillomata in children, discredits the spontaneous disappearance of the growths after tracheotomy, and advises

the performance of a tracheotomy and the wearing of a permanent canula until the larynx becomes further developed. Intubation is never advisable, bleeding and irritation being inevitable.

McBride ("Brit. Med. Journ.," May 14, 1892) and Hunter Mackenzie ("Brit. Med. Journ.," Dec. 2, 1892) describe cases of laryngeal cysts.

Sokolowski ("Gaz. Lek.," 1892, No. 32) reports four cases of erysipelas of the larynx, of which three ended in recovery.

Semon ("Brain," Winter, 1892), defends the statement that there is a greater proclivity for the abductors than for the other laryngeal muscles to become paralysed in cases of lesions of the vagus or recurrent laryngeal nerve. The early atrophy and destruction of the abductors in cases of organic lesions of the nerves, and the relatively early death of the abductors in experimental lesions of these nerves, favours the view that there is an actual difference in the biological composition of the said muscles and nerve endings. He favours the view that the motor supply of the larynx (recurrent at least) is derived from the spinal accessory. He also insists that the cortical centre of either side controls both vocal cords, and that therefore a paralysis of one cord cannot result from a lesion of the opposite side.

Masini ("Boll. delle Malat. dell' Orecchio," July, 1893), after having made some new experiments, comes to the following conclusions:—

1. Upon the cortex of the brain of the dog there are two bilateral centres which regulate the movements of the opposite side of the larynx.

2. These centres are connected with other motor centres, and particularly with those presiding over the glottic function.

3. When one of these centres is impaired or destroyed (whatever may be the manner) there does not follow paralysis, but a glottic paresis, on account of the presence of crossed and direct fibres.

4. Bilateral impairments produce a more evident and persistent paresis, without reaching the degree of a true paralysis.

Kanthack and Huderson ("Journal of Physiology," Vol. xiv., Nos. 2 and 3, p. 154) have found that in man and in certain of the lower animals, *e.g.*, dogs, cats, etc., during deglutition under natural conditions, the epiglottis descends and covers the entrance to the larynx after the manner of a lid. In some animals they found that the base of the tongue may replace the epiglottis, the aditus laryngis being pulled up and pressed against the tongue.

Max Thorner ("Med. News," Jan. 28, 1893) advises the use of a modified tuberculin in the treatment of laryngeal phthisis. The preparation he uses is Hunter's modification B of tuberculin. The injections are made between the shoulder blades with carefully sterilized syringes and needles.

At a meeting of the British Laryngological Association (June 30, 1893) several members present testified to the great value of Dundas Grant's safety endo-laryngeal forceps.

W. Milligan.

OTOLOGY.

WE again offer our readers a retrospect of as much of the literature of otology as has been placed before them in the form of abstracts and other papers in the Journal for the past year. As before, we have given the references to the original sources as being of greater service than if we had referred to the abstracts in our Journal, which can easily be found in the index.

ANATOMICAL POINTS.—Otto Körner ("Arch. of Otol.," Oct., 1892) adds several more observations to his already well-known contributions to *the Anatomical Relations of the Parts about the Temporal Bone*. He finds that in dolicho-cephalic skulls the mastoids are much more often pneumatic than in the brachy-cephalic, and that in the former also the lateral sinus does not extend so deeply into the base of the petrous bone. *Mastoid Measurements*, carried out on four hundred crania by Coues ("Boston Med. and Surg. Journ.," Sept. 21, 1893), showed that thirteen had asymmetric mastoid processes. In one hundred and sixty-four there was either a small mastoid or a deep digastric fossa, and of these one hundred and thirty-six had a very deep lateral sinus, and therefore liable to injury in mastoid operations. *The Mastoid Antrum in Children* receives a formal academical description from A. Cheatle ("Lancet," Dec. 3, 1892). He suggests very pertinently that the application to it of the term "mastoid" is erroneous, as it is part of the petrous bone, and that a better name would be "tympanic receptaculum." We fully appreciate the correctness of his contention, and have proposed "petrous antrum" or "tympanic antrum" as more acceptable and equally appropriate (JOURNAL OF LARYNGOLOGY, Feb., 1893).

Cranimetric Measurements by Randall (Pan-American Congress, 1893) are adduced to show that the cranial index gives little pointing to the anatomical relations of the structures around the petrous bone.

The *Comparative Anatomy of the Ossicles* shows, according to Horne (Amer. Otol. Soc., July 13, 1893), that the descriptions given by Gruber of the processus longus of the malleus, and by Helmholtz of the malleo-incudal joint in man, hold equally in many animals. Though the form of these bones varies, that of the incus is very constant.

PHYSIOLOGICAL POINTS.—*The Limit of Hearing for Low and High Tones in connection with Age* has been investigated by Cuperus. (Dissertation, Leyden, 1893.) He confirms Zwaardemaker's observation of the lowering of the upper limit proportionately with increase of age. As regards the lower limit, tested by Apunn's apparatus, he found a similar but much slighter shortening, the limit being from ten to twenty years, 10·10 vibrations; twenty to thirty, 10·54; thirty to forty, 10·85; forty to fifty, 11·00, fifty to sixty, 12·33; above sixty, 12·95. In a further communication on the *Continuous Tone-range, especially on the Physiological Upper and Lower Limits of Audition* ("Zeitschrift für Ohrenheilk.," Dec., 1892), Bezold found the average upper tone-limit at 2003 of Galton's whistle, and the lower one at a tone having 1704 vibrations per second.

He found variations according to age of the same nature as Zwaardemaker, but much less in degree.

The Functional Examination of the Normal Ear has been practised by Siebenmann ("Arch. of Otol.," Jan., 1893), who has brought out some interesting facts. He found that Valsalvan inflation of the tympanum diminishes air-conduction and increases bone-conduction for the fork A, and raises the upper tone-limit, whereas aspiration (Toynbee's experiment) decreases both air- and bone-conduction, and lowers or leaves unaffected the upper tone-limit. Pressure on the stapes by means of a probe increased bone-conduction, and tamponment of both the labyrinthine fenestrae did not influence the perception of high tones.

A New Form of Osteo-Tympanal Acoumeter has been devised by Gradenigo ("Zeitschrift für Ohrenheilk.," Dec., 1892), consisting of a coil of wire connected with a faradic battery. Among other results, he has found that in all cases of middle-ear disease the osteo-tympanal conduction was diminished as tested by means of the minimal sound perceived.

The *Quantity of Tone*, meaning in addition to the intensity the minimal length of time it has to continue in order to be perceived by the patient, has been measured clinically by Dennert ("Arch. für Ohren.," Bd. 34, Heft 3).

Bonnier has studied the *Mechanism of Deglutition and opening of the Eustachian Tubes* in a patient who had lost the palate and a considerable amount of the framework of the nose (Paris Society of Laryngol., Otol., and Rhinol., Dec. 7, 1892). The tubes opened during deglutition in spite of the absence of the peri-staphyline muscles and palatine aponeurosis.

The Fatty Layer in the Lateral Wall of the Eustachian Tube has been investigated by Ostmann ("Arch. für Ohren.," Bd. 34, Heft 3), who looks upon it as protecting the ear from the sounds of the patient's own voice—thereby preventing autophony—and also from the invasion of micrococci from the naso-pharynx.

AURICLE.—Knapp ("Arch. of Otol.," Oct., 1892) describes an interesting case of *Rudimentary and displaced Auricle, with defective development of the side of the Face*. It resembles Mr. Heaton's case in the JOURNAL OF LARYNGOLOGY for April, 1892.

A case of *Gangrene of both Ears* is narrated by Lockwood ("Brit. Med. Journ.," Feb. 4, 1893), which resembled one of Raynaud's disease.

Hæmatoma Auris is discussed by Rouse ("Lancet," Dec. 3, 1892), who finds it most frequent in acute mania and the maniacal stage of general paralysis. He considers violence of some sort essential to its production. Wynne describes a change in senile ears ("Trans. of Path. Soc.," 1892), consisting of a breaking up of the cartilage, and considers that in some insane people an analogous change takes place.

Epithelioma of both External Ears is described as occurring in one case by Sumpter ("Lancet," April 18, 1893), but Snow (*ibid.*, April 25) considers that on one of the ears the disease was simply eczema.

Squamous Epithelioma of the Auricle occurred in a case under Crawford ("Brit. Med. Journ.," Mar. 18, 1893), commencing in the

typical way as a wart, and involving the greater part of the auricle in fourteen months. It was removed by the knife, leaving the unaffected portions. Dench ("Arch. of Otol.," Vol. xxii., No. 2) has also reported a case, and expresses the opinion that malignant disease of the external ear is more amenable to surgical interference than the same affection in other regions of the body. Meyer treated a case of epithelioma of the ear by *Excision and Skin-grafting*, after Thiersch's method, with good result ("Med. Rec.," Jan. 14, 1893).

In a case in which the epithelioma adhered to the cartilage, Orme Green ("Arch. of Otol.," July, 1893) performed amputation. A *Cavernous Angioma of the Auricle* called for amputation after ligation of the external carotid. An *Ulcerated Tuberculous Affection of the Lobe of the Left Ear with Anæsthesia of the same side of the Face, complicated with Scabies*, reported by Ellis ("Lancet," Feb. 25, 1893), strongly suggests the idea of its being a manifestation of leprosy.

The Treatment of Eczema of the Ear, according to Chatellier (Soc. of Laryng., Otol., etc., of Paris, April 7, 1893), is best carried out in the moist form by means of sublimate lotion, drying, and dusting with iodol; in the dry form by similar washing and drying, but with an application of iodol in lanolin or paraffin oil. Hermet preferred nitrate of silver after syringing with warm water, and Ménière strong solution of carbolic acid in glycerine.

Max Thormer (Pan-American Congress, 1893) draws attention to *Pathological Conditions following Piercing of the Lobules of the Ear*. He has observed crysipelas, cleavage, enlargement of the perforation, eczema, fibro-chondroma, fibroma, keloid.

EXTERNAL MEATUS.—*An Aural Reflex of Unusual Character due to Impacted Cerumen*, consisting in an annoying cough and spells of inability to swallow food, is described by Theobald (American Otological Society; "Med. Record," July 29, 1893). *Aural Reflexes* excited in three different situations are described by Bonnier (Soc. of Laryng., Otol., etc., of Paris, Feb. 3, 1893). 1. On touching the membrane a short cough with irritation at the level of the glottis. 2. A spot external and posterior to the membrane, a cough of bronchial character (both these belonging to the vagus). 3. Near the outer orifice of the meatus a hiccough or eructation (great auricular and phrenic). An *uncommon Form of Deafness*, in a case under the care of Williamson ("Lancet," Jan. 21, 1893), arose from the presence of the body of a blow-fly in the ear for eighteen months. In a case related by Bonnier (Soc. of Laryng., Otol., etc., of Paris, Feb. 3, 1893), a piece of glass tube had been in the ear for twenty-three years, and was imbedded in cerumen, and in one by Connors ("Med. News," Aug. 26, 1893) a white bean had been retained for thirty-nine.

A case of *Aural Exostosis*, causing purulent retention in the deep parts of the ear, removed with the electric snare, is narrated by Barr ("Brit. Med. Journ.," July 2, 1892).

Removal of the Cartilaginous Meatus for Epithelioma was practised by Orme Green ("Arch. of Otol.," July, 1893), but recurrence took place. A *Sarcoma of the Meatus* was completely eradicated by him after one

recurrence. *Hamorrhage from the Meatus* was, in one of his cases, traced to a small angioma on the inner side of the tragus.

MIDDLE EAR.—In *Pure Catarrh of the Eustachian Tube*, Siebenmann ("Arch. of Otol.," Jan., 1893) found, in addition to the other well-known symptoms, elevation of the "lower tone-limit" even up to A—¹, and reduction of the "upper tone-limit." Inflation restored low tones, but left the upper tone-limit as before. He attributed this to hyperæmia *e vacuo* of the portion of the membrana basilaris nearest to the fenestra rotunda—the shortest fibres.

The *Diagnosis between Middle-Ear and Labyrinthine Deafness* can be made, according to Jankau ("Arch. für Ohren." Bd. 34, Heft 3), by a kind of transauricular auscultation. By means of diagnostic tubes in the patient's and the observer's ears the sound of a vibrating tuning-fork on the vertex of the former is conveyed to the latter, louder from the side affected with middle-ear disease, less loud from that with labyrinthine.

A *Foreign Body in the Tympanum* took a very remarkable course in a case described by Greene ("New York Med. Journ.," March 25, 1893). It entered the tympanum, and left only a thin streak behind the manubrium. Three weeks later, abscess formation took place, and pus discharged through a perforation. A piece of alder twig was removed by means of a fine syringe introduced into the opening.

Vibratory Massage of the Middle Ear by Means of the Telephone, acted on by an interrupted current, has been tried by Wilson ("New York Med. Journ.," Feb. 25, 1893) in five cases. Some diminution of tinnitus occurred in three, but no increase of hearing power in any.

Eustachian Synechiæ—adhesions between the pharyngeal extremity of the tube and the walls of the naso-pharynx—are attributed by Robertson to inflammation, adhesion, and retraction of the pharyngeal tonsil. He breaks them down by means of the finger-nail.

The Influence of Disease of the Nose and Naso-Pharynx on Disease of the Ear was treated of by Robertson (Brit. Med. Assoc., Aug., 1893), who illustrated it by cases of nasal diaphragm, suppuration of the antrum of Highmore, interstitial and purulent ethmoiditis, and suppuration in the sphenoidal sinus. In *Some Observations bearing on the Treatment of Nasal and Middle-Ear Affections*, Tuttle ("Boston Med. and Surg. Journ.," April 13, 1893) suggests as a test for perforation of the membrane the use of politizerization after the insertion of some oil—benzoinol—into the ear, the oil being expelled if a perforation is present. Dr. Barr, in discussing *Treatment of the Nose and Throat as a source of Middle-Ear Disease*, urges great caution in the use of the nasal douche ("Lancet," Dec. 17, 1892), and Sir William Dalby goes so far as to proscribe it altogether. *Internal Massage* of the nasal and pharyngeal mucous membrane is stated by Laker (Verhandl. des Deutsche Otol. Gesellschaft, Frankfurt, April 16, 1892) to have been followed by improvement in chronic catarrh of the middle ear. *The Causes giving rise to Inflammations of the Ear or Neighbouring Parts after Operations upon the Nose or Naso-Pharynx*, according to Bresgen ("Wien. Med. Woch.," 1892, Nos. 45, 46 and 47), are propagation by the surface or by lymph

channels, especially if blowing the nose be improperly performed. He recommends pyoktatin in the after-treatment. *Otitis Media following Amputation of the Uvula* occurred in a case observed by Braislin ("New York Med. Journ.," Mar. 4, 1893), but was probably of a tuberculous nature. Injections of from four to five drachms of warm *liquid vaseline* are recommended by Delstanche ("Bull. de l'Acad. Roy. de Méd. de Belgique," Tome vi., No. 10) in catarrhal conditions of the middle ear. Lake ("Lancet," May 27, 1893) draws attention to the occurrence of *Localized Inflammation of the Posterior Superior Quadrant of the Tympanic Cavity*.

Angioma of the Tympanum was present in a case under Orme Green ("Arch. of Otol.," July, 1893).

Among other *Cases of Foreign Body* was one narrated by Wherry ("Lancet," June 3, 1893) of a *Blue-bottle and Maggots*, the latter having apparently developed during the fifteen minutes that the insect was in the ear. *A Foreign Body in the Ear for Twenty-one Years*—namely, a pea—was removed in a dried and shrivelled condition by E. J. Pritchard ("Lancet," June 10, 1893). Frederick Cox (JOURNAL OF LARYNGOLOGY, Feb., 1893) reported a case of *Otitis Externa due to an Unusual Foreign Body*, viz., a number of bristles similar to those of a tooth-brush.

SUPPURATIVE INFLAMMATION OF THE MIDDLE EAR.—Schmiegelow ("Arch. of Otol.," Oct., 1892) refers to the part played by the external attic in chronic ear disease. It may be the only part affected. The treatment first called for is local injection by means of a tympanic canula, or enlargement of the opening and cauterization. This cures many cases, but in some the excision of the membrane and ossicles is required, and if this fails it is usually on account of caries of the walls of the attic or cholesteatoma in the mastoid antrum or cells necessitating Stacke's operation. Meyjes ("Nederland Tgdschr. v. Geneeskunde," 1893, Deel 1) strongly advises excision of ossicles before resorting to such operations as Stacke's. Field, in his Harveian Lectures, has given a thorough review of the *Pathology and Treatment of Suppurative Disease of the Ear* ("Brit. Med. Journ.," Dec. 3, 17, 1892), including the bacteriological aspects of the subject. *Suppurative Median Otitis with Multiple Nuclei of Suppuration from Staphylococci* is described by X. ("Ann. de la Soc. Medico-Chirurg. de Liège," Sep., 1892), the concomitant affection being osteo-myelitis of the tibia. *The Treatment of Middle-Ear Disease*, in both acute and chronic forms, has been well summarized and illustrated by Parkin ("Sheffield Med. Journ.," Vol. i., Part 3). *A New Tympanic Syringe* of very convenient form, fed from a lofty reservoir, was shown by Milligan in the otological section of the British Medical Association at Newcastle. *The Treatment of Chronic Suppuration of the Middle Ear* is fully discussed by Prof. Politzer in a clinical lecture ("Lancet," Aug. 19, 1893), in which he gives cautions in the use of perchloride lotions, and methods for the prevention of the formation of cholesteatoma. *Aspiration of Pus* by means of Siegel's suction speculum is practised by Courtade (Soc. of Laryng., Otol., etc., of Paris, April, 1893). It has already been recommended by Gruber.

OPERATIONS IN THE EAR.—*Removal of the Drumhead and Ossicles in Diseases of the Middle Ear* was practised by Melville Black ("Med. News," April 15, 1893) in five cases. In two with suppuration the disease was cured, but in the "dry" cases little benefit was obtained. *Partial Myringectomy* (postero-superior quadrant) and *Removal of the Incus and Stapes*, or of the incus and crura of the stapes, is recommended by Burnett for tinnitus and aural vertigo in chronic catarrhal otitis media ("Med. News," May 13, 1893). *Otosclerectomy* and *Otonecrotomy* are praised by Sexton ("Med. Rec.," Feb. 18, 1893). He attaches little value to operations for the mobilization or removal of the stapes. *Excision of the Auditory Ossicles* for chronic suppuration was recommended by Milligan (Brit. Med. Assoc. meeting at Newcastle, Aug., 1893), particularly in cases of attic suppuration and perforation of Shrapnell's membrane. He quoted Ludewig's statistics in favour of the operation. Arbuthnot Lane considered antrectomy preferable. In a paper on the *Difficulty of Operating in the Depths of the Ear Canal* (American Otol. Soc., "Med. Record," July 29, 1893), Barclay recommends a very short speculum of his design made with handles of different shapes—spoon handle, incomplete ring, and tailors' thimble—and instruments of bayonet-shape, but so made that the point is directly in a line with the handle.

Stacke's Operation is advanced by Dr. Felix Cohn (Pan-Amer. Cong., 1893) as a safe and justifiable operation in chronic aural catarrh as helping to prevent the regrowth of the membrane.

Otosclerectomy for chronic dry catarrh received some support from Dr. Lawrence Turnbull, who was strongly in favour of excision of ossicles in the suppurative cases (Pan-Amer. Cong., 1893).

STAPEDECTOMY.—In *Remarks on Two Cases of Excision of the Stapes* ("Boston Med. and Surg. Journ.," April 13, 1893), Jack found considerable power of hearing after the operation. It has been further studied by Clarence Blake and by F. L. Jack (American Otol. Soc., July, 1893). They have arrived at the conclusion that it is not practicable in chronic dry catarrh, as the crura are more likely to be fractured than the foot-plate to be removed. Blake thinks mobilization would give equally good results in the post-suppurative cases. He is guided by the results of an "exploratory tympanotomy," and tries first the effects of synechotomy, tenotomy, crucial incision, and artificial drum. Jack states that some cases of tinnitus and aural vertigo are relieved, but the results are not very promising. He has practised the operation in forty-eight cases.

MASTOID DISEASES AND OPERATIONS.—*Percussion of the Mastoid Process* practised by Lücke on various bones of the body ("Centralbl. für Chirurg.," 1876, and "Archiv für Klin. Chirurg.," 1877) has been carried out by Koerner and Wild ("Zeitschr. für Ohrenheilk.," Dec., 1892), comparative dullness indicating disease of the bone, not necessarily solidification of its cavities.

Transillumination of the Mastoid Cells, as a means of diagnosis of internal suppurative mastoiditis, is recommended by Caldwell

("New York Med. Journ.," July 15, 1893). A small electric lamp, partially covered with thin rubber tubing, is fitted into the meatus.

Two cases of *Osteoma of the Mastoid* are narrated by Orme Green ("Arch. of Otol.," July, 1893). *The Length of Time that ordinary Antiseptic Treatment should be tried* in cases of chronic middle-ear suppuration, as such, before resorting to surgical clearance of the antrum and tympanum, has been formulated by Victor Horsley as one year (Brit. Med. Assoc., Aug., 1893). *Stacke's Operation* is described by Milligan as successful in two cases of chronic suppurative middle-ear disease, in which he employed it ("Brit. Med. Journ.," April 8, 1893), and Robertson (Brit. Med. Assoc., Aug. 1893) recommends it in chronic cases, while preferring Schwartz's for the acute. The subject receives very thorough consideration in his paper. Prof. Macewen (*ibid.*) agreed with Schwartz's recommendations. He thought further that it was advisable to operate even when there was evidence of the presence of septic meningitis. The *Facial Nerve* is to be avoided by not operating too low, and by watching for twitching of the facial muscles, or by introducing a bent probe into the aditus ad antrum (Macewen, Horsley, Robertson, *ibid.*). In case of its destruction by disease Horsley (*ibid.*) thought there was scope for nerve-grafting. The "*Secondary-suture*" in *Mastoid Operations* is recommended by Gruber ("Monats. für Ohrenheilk.," Dec., 1892), and consists of a stitch going so deeply as to include the periosteum, when it is considered desirable to hasten the closure of the mastoid wound after having kept it open by plugging or otherwise.

The *Markedly Counter-Irritant Effects of the usual Mastoid Operation* are considered by Buck (Amer. Otol. Soc., July 13, 1893) to be very important elements in their beneficial action in cases of post-otitic intra-cranial mischief. He believes that most good results in those cases in which the mastoid wound takes what would be generally considered a rather unsatisfactory course.

Death from Exhaustion and Hemorrhage occurred in a case described by Dr. Knapp (Amer. Otol. Soc., July 13, 1893), of a feeble child with extensive caries and necrosis of the temporal bone, in spite of mastoid operation. In another case, in spite of apparent wounding of the lateral sinus, and serious cerebral and pulmonary symptoms, complete recovery took place.

Autopsies in Two Cases of Complicated Middle-Ear Disease, one of subdural and cerebellar abscess and septic pleuro-pneumonia, the other of sinus phlebitis and meningitis, are reported by Sutphen (Amer. Otol. Soc., July, 1893), and Gruening (*ibid.*) relates one of *Fatal Thrombosis of the Lateral Sinus*.

Pepper ("Clin. Journ.," Feb. 1, 1893) insists on earlier recourse to operation in mastoid disease following chronic suppurative middle-ear disease, and this particularly when there is long-continued mastoid pain or when a mastoid abscess has burst.

CHOLESTEATOMA.—*Cholesteatoma of the Mastoid Cells* is described with a typical case by Marmaduke Sheild ("Lancet," May 13, 1893). He gives the generally accepted explanation. It is also treated of by

Friedenwald ("Med. News," Mar. 11, 1893), the diagnosis depending on the appearance of the masses in the meatus or middle ear, or the removal of flakes when the ear is syringed.

DANGEROUS SEQUELÆ OF CHRONIC SUPPURATIVE CATARRH OF THE MIDDLE EAR.—A case of *Thrombosis of the Lateral Sinus* under Adams ("Arch. of Otol.," Vol. xxii., No. 2), complicated with subtentorial suppuration, illustrates some of the difficulties in diagnosis. In a case of *Pyæmia resulting from Disease of the Middle Ear* ("Lancet," Jan. 21, 1893), under Scott and Lane, the mastoid was opened, a subdural abscess evacuated, the internal jugular tied in the neck, the inflamed wall of the thrombosed lateral sinus cut away, and the clot drawn out. Good recovery took place. In a similar case Pritchard and Cheatle ("Lancet," March 4, 1893) had also a good result. The girl, aged eighteen, had been ill for eight days, and had had no sign of ear disease since the cessation of an otorrhœa in childhood. The cheesy contents of the antrum indicated an old-standing latent disease. Parkin ("Lancet," March 17, 1892) narrated two other cases of *Aural Pyæmia treated by Operation* on similar lines. In a child aged eleven months there were no rigors, but numerous fits, and a swelling behind the left mastoid was found, when opened, to communicate through the mastoid foramen with the groove for the lateral sinus. In a paper on the *Symptoms and Treatment of Septic Infection of the Lateral Sinus*, Arbuthnot Lane ("Brit. Med. Journ.," 1893, Vol. ii., p. 561) held that the condition was always due to the extension of an inflammatory process from an abscess between the bone and dura mater through the wall of the sinus, a subdural—or, better, extradural—abscess, the early recognition and evacuation of which is of primary importance. After antrectomy he insisted in all cases of septic sinus phlebitis on ligation of the internal jugular vein and clearing out of the extradural abscess, removing as much as possible of the proximal portion of the clot, then the whole of the distal portion, or, if there be no thrombosis, slitting up the sinus beyond the limits of the abscess wall and plugging it with gauze and iodoform. He paid a tribute to Mr. Victor Horsley for having originated this plan of treatment. Prof. Macewen (Brit. Med. Assoc., Aug., 1893) preferred to lay the sinus open, turn out its contents, separate the outer wall and involute it upon the inner wall, retaining it in this position with iodoform, boracic acid, and iodoform gauze, rather than ligation of the internal jugular. Prof. Horsley, on the other hand (*ibid.*) preferred the ligation, and pointed to the brilliant results obtained by Ballance and Lane. A successful case of *Ligation of the Internal Jugular Vein and Trephining of the Lateral Sinus in an Ear Case, where the Symptoms of Pyæmia were well marked*, by Clutton ("Brit. Med. Journ.," April 19, 1892), and one of *Aural Pyæmia successfully treated by removing Putrid Thrombus of the Jugular Vein and Lateral Sinus*, by Rushton Parker ("Brit. Med. Journ.," May 21, 1892), are well worthy of study.

The Extension of Diseases of the Tympanum along the Carotid Canal into the Cranial Cavity is studied by Koerner ("Zeitsch. für Ohrenheilk.," Dec., 1892), and numerous references to important cases are given.

Cases of *Intra-Cranial Abscess* are narrated by Jones ("Liverpool Med. Chir. Journ.," Jan., 1893), who lays down the rule that until the so-called mastoid antrum, the attic of the tympanum, the anterior surface of the petrous bone, and (in cases of suspected cerebellar abscess) the sulcus lateralis have been thoroughly explored for pus, it should not be assumed that a temporo-sphenoidal or cerebellar abscess exists, or at least no operation should be undertaken to relieve the last two conditions which does not in its preliminary part satisfactorily dispose of the others. One of *Diffuse Cerebral Abscess and Meningitis* is given by Schleicher ("Ann. de la Soc. Méd. d'Anvers," Nov., 1891). There was right external strabismus, right hemiplegia, loss of sensation on the left side, clonic spasms, difficulty in swallowing.

A case in which high temperature, rigors, and other pyæmic symptoms occurred in otitis media, all disappearing on the supervention of a copious discharge from the ear, is described by Blomfield ("Lancet," Aug. 19, 1893).

Cavities of the Entire Pyramid of the temporal bone, followed by complete healing after removal, took place in a case under Max Thorner ("Cincinnati Lancet Clinic," June 10, 1893).

LABYRINTHINE DISEASE.—*Syphilitic Internal Otitis* is divided by Charazac ("Journ. of Laryng. and Ophthalm.," Oct., 1892) into two classes—the "isolated" apart from any other lesion of the auditory apparatus, the "propagated," secondary to middle-ear disease. *Aural Syphilis* ("New York Med. Journ.," Oct. 7, 1893) is treated of by Max Toeplitz, and a typical case occurring at the commencement of the second stage is narrated.

The Labyrinth in a Case of Luchamic Deafness is described by Wagenhäuser ("Arch. fur Ohren.," Bd. 34, Heft 3).

A Peculiar Affection of the Labyrinthine Capsule, characterized *post-mortem* by circumscribed bony growths in and around the fenestra ovalis, is accredited by Prof. Politzer (Pan-Amer. Cong., 1893) with producing some of the intractable forms of progressive deafness often attributed to dry sclerotic catarrh.

AUDITORY NERVE.—The *Clinical Evidences of Affections of the Auditory Nerve* as distinguished from those of the labyrinth are, according to Gradenigo ("Zeitschrift für Ohrenheilkunde"), diminished perception, chiefly of the tones in the middle of the range, and an extreme degree of functional fatigability of the nerve.

Auditory Nerve-deafness treated with Pilocarpin, in a case under Cresswell Baber ("Brit. Med. Journ.," Feb. 25, 1893), was improved in spite of the co-existence of middle-ear disease. It was found useless by Metcalfe (Brit. Med. Assoc., Aug., 1893) in old-standing syphilitic cases, in those resulting from meningitis, in progressive sclerosis of the middle ear. In chronic middle-ear catarrh with co-existing internal deafness slight temporary improvement was observed, but speedy relapse took place, and the continuation of the treatment was of no benefit. He had more satisfaction from intra-tubal injections.

FUNCTIONAL DEAFNESS.—Among *Strange Incidents in Practice* Dalby described ("Lancet," Feb. 4, 1893) a case of sudden bilateral loss of hearing from emotional shock. In another case hysterical deafness occurred, the patient having previously been "blind" for a number of weeks. Analogous to these was a case of neurotic loss of speech.

SIMULATED DEAFNESS.—Dr. Barr ("Arch. of Otol.," Oct., 1892) describes a case in which the patient professed to understand by watching the lips, but she was unable to do so unless the sounds were uttered. She was detected through her singing a song which she had just heard for the first time.

VERTIGO.—A discussion on vertigo took place in the Medical Society of Virginia. ("Med. Record," Oct. 8, 1892.) Dr. Brady considered the gastric form the most common. Dr. Bedford Brown insisted on the necessity for examination of the urine for albumen, casts and sugar whenever the tendency to vertigo is marked and persistent, adding that he had never seen a case of chronic nephritis or diabetes mellitus without more or less vertigo. Dr. Joseph White believed that all cases of so-called "nasal vertigo" were really aural vertigo. C. H. Burnett (American Otol. Soc.—"Med. Record," July 29, 1893) disputes the claim of Ménière to the honour of having aural vertigo named after him. He ascribes it to middle-ear disease, and advises surgical treatment—the removal of the incus.

The Varieties of Vertigo are detailed by Miles ("Med. Rec.," Feb. 18, 1893), as from intra-cranial disease, ocular troubles, disease of blood-vessels (arterio-sclerosis), diseased conditions of blood, irritation reflected to the labyrinth or brain.

MISCELLANEOUS ABNORMALITIES OF HEARING. — *Monaural Diplacusis*, according to Gradenigo ("Zeitschrift für Ohrenheilk.," Dec., 1892), is always harmonic—i.e., the false sound is an overtone of the true one. The cases described were of middle-ear disease.

DEAF-MUTISM.—The *Preventibility of Deaf-mutism* in many cases is dwelt on by Hobby (Pan-American Congress, 1893), in view of the fact that not more than fourteen—and probably only ten—per cent. are congenital. The principal cause is to be sought in various forms of meningitis in the early months of life. Maloney (*ibid.*) draws attention to some good results obtained by means of *otacoustic treatment*, a system of "aural massage" by sounds conveyed through a suitably prepared tube.

The Pathology of Deaf-mutism is treated of in a very interesting manner by Love ("Arch. of Otol.," July, 1893), founding on the examination of one hundred and seventy-five pupils in the Institution for the Deaf and Dumb at Glasgow. Congenital cases showed a larger percentage of extreme deafness than the acquired ones. Measles was more frequently a cause than scarlet fever. Holger Mygind ("Arch. of Otol.," July, 1893) approaches the subject from another point of view, the examination of the *Temporal Bones of Deaf-mutes* belonging to the pathological museum of the Copenhagen University. In an article on *Deaf-mutes in Denmark* ("Arch. of Otol.," Oct., 1892), he brings forward many interesting points.

A remarkable increase could be traced to an epidemic of cerebro-spinal meningitis.

AURAL SYMPTOMS IN GENERAL DISEASES.—Among the *Nervous Sequelæ of Influenza* Gowers signalizes hyperacusis, aural neuralgia, nerve-deafness and tinnitus. ("Lancet," July 8, 1893). In one case he observed the tinnitus taking the form of tunes, and therefore central in origin.

THE INFLUENCE OF DISEASE OF THE EAR ON THE MENTAL AND PHYSICAL DEVELOPMENT OF THE CHILD, while sufficiently obvious, has received considerable attention from Schneider ("Med. News," April 8, 1893). Among other observations, he quotes those of Gellé, who found that out of twenty "bad" pupils only six could hear a watch tick at half a metre, whereas, of the "good" ones, all could hear it well.

Dundas Grant.

ASSOCIATION MEETINGS.

PROCEEDINGS OF THE LARYNGOLOGICAL SOCIETY OF LONDON.

Ordinary Meeting, October 11th, 1893.

FELIX SEMON, M.D., F.R.C.P., *Vice-President*, in the Chair.

E. CLIFFORD BEALE, M.B., and SCANES SPICER, M.D., *Secretaries*.

Present—Seventeen Members and two Visitors.

The following gentlemen were elected Members of the Society :—

CHARLES ROTHERHAM WALKER, M.D., Leytonstone.

DENNIS EMBLETON, M.R.C.S., Bournemouth.

HENRY DAVIS, M.R.C.S., London.

VINCENT DORMER HARRIS, M.D., F.R.C.P., London.

WILLIAM ARTHUR AIKIN, M.D., London.

The following candidates were proposed for election :—

PATRICK WATSON WILLIAMS, M.D., Bristol.

WALTER GEORGE SPENCER, M.B., F.R.C.S., London.

WILLIAM HALE WHITE, M.D., F.R.C.P., London.

The minutes of the previous meeting were read and confirmed.

EXHIBITION OF PATHOLOGICAL SPECIMENS, MACROSCOPIC AND MICROSCOPIC, ILLUSTRATING MALIGNANT DISEASE OF THE LARYNX.

Mr. BUTLIN showed the following specimens, brought by the kind permission of the authorities from the museum of St. Bartholomew's Hospital.

1. Recurrent epithelioma (intrinsic) which had grown through and around the tracheotomy wound. From a man aged forty-three; thyrotomy three months before death; very rapid recurrence.

2. A larynx from which (intrinsic) epithelioma had been removed. A man aged sixty; large abscess cavity around the tracheotomy wound.

3. Epithelioma (intrinsic) from a man aged fifty-six, who had presented symptoms for some months, and had been brought in dead of dyspnœa.

4. The parts removed from a case of epithelioma of larynx (intrinsic). Patient aged fifty; symptoms of two years' duration. Disease began as warty growth of left vocal cord.

5. Epithelioma (extrinsic) from a man aged forty. Symptoms of some months' duration; dyspnœa and dysphagia; death from sudden attack of dyspnœa, although tracheotomy was performed.

6. Epithelioma (extrinsic). Man aged forty-five, who died two days after admission.

7. Epithelioma (extrinsic), old specimen.

Dr. DE HAVILLAND HALL exhibited a specimen from the Westminster Hospital museum (No. 784), the larynx of F. B., a gentleman aged fifty-six. The right half of the larynx was the seat of a ragged epitheliomatous growth, which extended across the middle line and affected the anterior part of the left vocal cord.

F. B. was examined by Dr. Hall for life assurance in June, 1884, and, as he was hoarse, a laryngoscopic examination was made, and a condition of chronic laryngitis discovered; the applicant stated that he had had hoarseness for twenty years. He consulted Dr. Semon on account of hoarseness in January, 1885, who noted "congestion and relaxation of vocal cords." In August, 1886, F. B. placed himself under Dr. Hall's care. He was then suffering from almost absolute loss of voice, and had some difficulty in swallowing. The right ary-epiglottic fold was swollen, and concealed the vocal cord. There was some external swelling. There was no history of syphilis. Under the influence of iodide of potassium marked improvement occurred, but, as there had been an attack of laryngeal spasm, tracheotomy was advised, but refused by the patient. Three months later he was found dead in his bedroom, evidently from an attack of spasm.

Dr. FELIX SEMON showed the following specimens:—

1. The left half of a larynx removed for epithelioma of the left ventricle of Morgagni on May 3rd, 1887, by Dr. Hahn, of Berlin. This was the well-known case of the late Mr. Montagu Williams. The patient entirely recovered from the operation, regained his voice to such a degree that he was able to fulfil for nearly six years the duties of a police magistrate, and finally died in the commencement of 1892 from cardiac disease, altogether unconnected with the previous laryngeal trouble. The case has been described in the "*Transactions of the Clinical Society*," vol. xx., 1887.

2. The right half of a larynx, removed by Sir William MacCormac on November 1st, 1887, on account of infiltrating epithelioma, from a gentleman aged fifty-seven. The patient had been strongly advised to undergo the operation at a considerably earlier date, but could not at once make up his mind, and when he finally consented the operation had become considerably more extensive than had been originally contemplated, the growth by that time having perforated externally

beneath the crico-thyroid muscle. The patient died on the second day after the operation, apparently from septic pneumonia. No *post-mortem* examination was permitted. A remarkable feature of the case was the circumstance that there was an epitheliomatous insula in the middle of the *left* vocal cord, probably due to contact. The specimen well illustrates the necessity of arriving at a definite diagnosis in certain cases of malignant disease of the larynx from clinical symptoms only, without the aid of the microscope, as the infiltrating nature of the growth in this case rendered the intra-laryngeal removal of a fragment for the purpose of microscopic examination impossible. The case has been described as Case 2 in a paper read by Dr. Semon and Mr. Shattock before the Pathological Society of London under the title, "Three Cases of Malignant Disease of the Air-Passages." ("Transactions of the Pathological Society," 1888.)

3. Two specimens, one showing what remained of the larynx, the other a great part of the necrosed cartilaginous framework expectorated during life of a case of laryngeal cancer in which hæmorrhages, perichondritis, and exfoliation of the greater part of the laryngeal cartilages occurred. Subsequently pleurisy, gangrenous pneumonia, and death ensued. The case has been described under the above title in vol. xxii., 1889, of the Clinical Society's "Transactions." It was shown again to illustrate the fact that cancerous perichondritis in no way, clinically as histologically, differs from any other form of perichondritis. During life the symptoms of perichondritis had for a considerable time completely masked the phenomena of malignant disease.

4. The case to which this specimen belonged had been described in considerable detail in the Collective Investigation of the "Internationales Centralblatt für Laryngologie" concerning the question of the transition of benign laryngeal growths into malignant ones, especially after laryngeal operation, on p. 160 *et seq.* The patient was a lady who first began to suffer from hoarseness, and later on aphonia, at the age of twenty-five. When, five years later, she consulted Dr. Semon, another London laryngologist had already operated on her larynx for a considerable time without improving the voice. When first seen by Dr. Semon the larynx was in such a condition of swelling and congestion that it was impossible to decide whether the vocal cords had grown together anteriorly, or whether there was a growth between them. Only after nearly a year's interval could it be seen that there was actually a papillomatous growth below the anterior commissure. The growth was removed, and the patient fully regained her voice. For fully two and a quarter years after this she remained well, periodical laryngoscopic examination showing the complete integrity of the vocal organ. In May, 1888, it was seen that fresh growth began to appear at some distance from the original attachment of the papillomata, viz., on the lower surface of the epiglottis. The vocal cords were somewhat swollen and congested, their movements more sluggish than under normal circumstances. Within the next one and a quarter years, during which time the patient was under the care of Dr. Barclay Baron, of Bristol, rapid development of growth took place in the larynx, an abscess formed in front of the thyroid cartilage which had been opened and never healed,

and the patient, in whose case a radical operation for various reasons was quite out of the question, died in September, 1889. For fuller details of this very interesting case the original must be consulted. At the *post-mortem* examination it was seen that the whole larynx was involved in new growth, which microscopically was found to be a squamous-celled carcinoma. The vocal cords and ventricular bands could no longer be distinguished. The greater part of the thyroid cartilage had been eaten away, and the tumour, having perforated the anterior wall of the larynx, externally formed an extensive swelling below the anterior muscles of the neck. Within the tumour itself a large cavity was found lined by a markedly papillary surface, which only in some small portions was ulcerated.

The case is most remarkable in many respects—firstly, in its excessively long duration (from the beginning of aphonia to the death of the patient not less than ten and a quarter years). Secondly, in the fact that here in reality a malignant new growth appeared to have followed a benign one, inasmuch as the two and a quarter years' interval between the removal of the original papillomata, during which repeated examinations showed the complete anatomical integrity of the larynx, practically excluded the idea that the disease had been *à priori* malignant. This interval equally excludes the interpretation that a transformation might have been produced by the irritation caused by the intra-laryngeal operations. Thirdly, the marked tendency in this case to retain the original papillary type is very interesting indeed. When, a year and a half before death, recurrence was first manifested the intra-laryngeal appearances were still those of papillomata, and the walls of the abscess cavity resulting from the perichondritis and disappearance of the thyroid cartilage, although epitheliomatous in character, show even now this papillary type most markedly.

Finally, it deserves to be mentioned that both the original papilloma and the subsequent development more than five years later of malignant disease of the larynx followed childbirth.

5. Two specimens of a case of malignant disease of the larynx, which originally appeared in the form of a pedunculated growth, springing from the left aryteno-epiglottidean fold. The patient was a gentleman aged forty-four, who was sent to Dr. Semon in 1891 by Dr. Malbranc, of Naples, with the diagnosis of angioma of the larynx, and the appearances fully justified that diagnosis. The tumour was easily removed with the galvano-caustic loop, and on microscopical examination turned out to be not an angioma, but an apparently typical papilloma, surrounded by a shell of partly fresh, partly organized blood-clot (microscopic preparations shown). So far the case has been fully described by Dr. Semon and Mr. Shattock in the "Transactions of the Pathological Society" of 1891, page 37 *et seq.* Four and a half months later the tumour had recurred, and on being again removed showed distinct evidence of epitheliomatous nature. Sub-hyoid pharyngotomy was performed, and the basis of the growth entirely removed. On the third day after the operation the patient suddenly became comatose, the temperature rose to 107°, and twenty-four hours later death ensued.

At the *post-mortem* examination cedema and congestion of the brain and considerable fatty degeneration of the liver were found (the patient was a hard drinker), but no clue as to the cause of the coma and the fatal issue was obtained (see "Internationales Centralblatt für Laryngologie," vol. viii., p. 317).

The microscopic preparations (which were demonstrated) were most curious, in so far as they showed the simultaneous existence of epithelioma and papilloma in almost all the specimens without any evidence of transition of the one into the other. Apart from this, the case was of importance, because it was the first instance known in which malignant disease of the larynx had been observed to appear originally in the form of a pedunculated angioma. Besides several clinical points which were present in this case, and which had already on previous occasions been urged by the reporter as characteristic for the malignancy of an apparently innocent tumour — such as repeated hæmorrhages, quick recurrence, spontaneous pains, difficulties in swallowing — the unusual situation of the growth and the patient's age were referred to as giving valuable aid in diagnosis.

6. The specimen shown was removed by partial laryngectomy from the larynx of a gentleman aged fifty, who was sent to Dr. Semon by Dr. Kendal Franks, of Dublin, and who had been suffering for several years from a curiously irregular tumefaction of the left vocal cord, the nature of which for a long time was doubtful, it being in part almost transparent. The diagnosis was left open between fibro-cystic degeneration of the cord, fibroma, and malignant disease. At last, in 1891, rapid changes took place in the appearances, and when the reporter saw the patient in the spring of that year a general infiltration of the left half of the larynx had occurred. Radical operation was advised. The patient agreed, and only stipulated that no chloroform should be given, as he was supposed to suffer from weakness of the heart. It was suggested that ether should be given by the rectum, and the suggestion was followed, but this method certainly did not show to advantage in the present case. It took more than half an hour before the patient was sufficiently under the influence of the anæsthetic to commence the operation, large quantities of ether had to be used, and when the operation was finished the patient looked very white, and the pulse was very irregular. He also towards the end of the operation coughed up considerable quantities of *fluid* watery blood, the appearance of which was totally different from the expectoration sometimes met with in cases in which no complete occlusion of the trachea has been obtained. This expectoration continued, and three hours afterwards copious bloody discharges took place from the rectum, which in appearance were absolutely the same as the bronchial expectoration, and only in addition were very offensive. Within a few hours from the operation the temperature began to rise, the patient sweated profusely, and gradually got more and more comatose. With increasing coma, a temperature of 107°, and continuance of the bronchial and rectal secretions, the patient died twenty-four hours after the operation.

At the *post-mortem* examination intense congestion of almost the

whole of the intestinal tract and of the bronchial mucous membrane was found, and there could be no doubt that death was due to ether.

The reporter added that nothing but a strong sense of duty could have induced him to report this lamentable case, which might serve as a warning to future operators. It will later on be published *in extenso*.

7 and 8. The last two specimens illustrate the tendency of infiltrating malignant disease of the thyroid gland to become pedunculated when perforating into the large air-passages. The first was removed at the *post-mortem* examination of a man aged thirty-nine. It was a case of cylinder-celled carcinoma, and has been fully described in Dr. Semon and Mr. Shattock's paper, "Three Cases of Malignant Disease of the Air-Passages" ("Transactions of the Pathological Society of London," 1888).

The second one is a specimen of epitheliomatous disease of the thyroid gland, in which repeatedly pedunculated projections grew into the trachea. At one time a projection which had been seen in the trachea by two competent observers completely sloughed away, so that two other distinguished observers could not detect a trace of its former existence ten months afterwards. The case is described in full in the forthcoming volume of the "Transactions of the Royal Medical and Chirurgical Society."

DISCUSSION WITH ESPECIAL REFERENCE TO THE PRESENT POSITION OF THE QUESTION OF RADICAL OPERATION.

Mr. BUTLIN, after referring to some of the specimens which he had brought from St. Bartholomew's Hospital museum, said that to condense his remarks he would divide them under three headings: first, the circumstances under which laryngeal cancer should be removed; second, the operation which should be practised; third, the after-treatment of patients who had been operated on. Under the first heading he had little to add to what he had before said, but would repeat that the most favourable cases are those in which the disease is of intrinsic origin, and still limited to the interior of the larynx, is of small extent, uncomplicated, and particularly in which it lies towards the front of the larynx. Under the second heading, also, he had little to add to what he had previously said. The more he had seen of the operative surgery of malignant disease of the larynx, the more convinced he was that removal of the whole or a large part of the larynx for malignant disease was seldom followed by sufficiently good results to justify the operation. The best results had followed and were likely to follow thyrotomy with very free removal of the soft parts in the interior of the larynx. He could look back on one case in which the patient was alive and free from disease more than five years after operation (sections of this growth, epithelioma, were under the microscope on the table), and on another case in which the patient was still well four years after operation. Compared with operations for extensive or extrinsic disease, such thyrotomies were comparatively free from danger. Out of many of the latter he had lost only one case; out of few of the former he had lost two cases. On the question of after-treatment he had more to say, because he had given a

Rhinology, and Otology.

good deal of attention to it, and had regularly during the last three years carried out the suggestions he had made at Berlin. He removed Hahn's tube directly the operation was over. He made no attempt to close the wound. No tracheotomy tube was used, and no dressing was inserted into the interior of the larynx. But the surface was dusted with iodoform, and the iodoform was frequently applied; this was easily effected. Watching these patients, he had found that, when they swallowed, the two sides of the wound into the larynx separated to such an extent that the nozzle of the insufflator could be easily inserted between them, and the powder blown directly on to the raw surface. He regarded this as of the highest importance; he had a great opinion of iodoform in wounds of the mouth and larynx, but it was not likely to do good unless it reached the actual surface of the wound, and this was difficult to effect when the powder was insufflated through the mouth. He covered the external wound with a piece of iodoform gauze, which was changed as often as was necessary, even if this were fifteen or twenty times a day. Instead of propping the patient up in bed, he took away all the pillows, except one, so that the head lay low, placed the patient on his side, and thus did what he could to diminish the tendency of discharges to pass down into the bronchi. And, last, he fed the patient chiefly by means of nutrient enemata during the first few days; but, usually, on the day following the operation, he encouraged an attempt to take fluids by the mouth. Water was first tried, and the patient was made to sit up and lean well forward, or to lean over the edge of the bed, so that the fluid which passed into the larynx ran out through the wound immediately. If the patient succeeded in taking water without getting any quantity of it into the larynx, he was allowed to take beef-tea, milk, etc., and to try soft solids. Mr. Butlin had not lost a case of thyrotomy since he had employed these measures, and he fully hoped that his later success was due to the better measures which had been adopted in the after-treatment of the patients.

Mr. CRESSWELL BABER made a few remarks on perichondritis of the larynx, not associated with malignant disease.

Dr. SEMON, first in reply to the question addressed to him by Mr. Cresswell Baber, said that he did not deny the *possibility* of primary perichondritis of the larynx, but that such an event in his experience must be exceedingly rare. He had never seen a case in point. The poor vascularization of the perichondrium *à priori* made the occurrence of a primary perichondritis a very unlikely event, and in all his cases, either at the time or later, a true explanation of a traumatic or diathetic character had been found. With regard to the indications for and the *technique* of radical operation as laid down by Mr. Butlin, he agreed practically, with the exception of a few details, to everything that Mr. Butlin had said, and wished especially to emphasize the desirability of arriving *early* at a decision as to the nature of the laryngeal growth and of operating early. The chances then were infinitely better than if the operation were postponed to a later period. Altogether the number of cases suitable for operation was small in comparison with the total of cases seen. He had now seen about one hundred cases of malignant

disease of the larynx in private practice, and had only in about ten per cent. of all these felt justified in advising a radical operation, such as partial extirpation of the larynx or thyrotomy. The latter was, of course, not a very serious operation; at the same time he could not go so far as some of the Continental surgeons did, and altogether deny or underrate its risks. Against septic pneumonia great care could perhaps protect to a certain degree, but the coma with rise of temperature which occurred in two of his cases, without the *post-mortem* examination giving a clue as to the cause of these phenomena, certainly formed a very serious feature, and one to be always taken into account when the prognosis of the operation was discussed. Broadly speaking, radical operation had been successful in his cases in exactly fifty per cent.—*i.e.*, in five cases the patients having survived in good health and without any recurrence for periods now varying from one and a quarter to seven years. Of the remaining five cases, in three earlier, and hence less extensive, operation might possibly have averted the fatal result, but in two cases death could not be accounted for. The methods of operation selected in his cases had been (1) partial extirpation of the larynx; (2) sub-hyoid pharyngotomy; (3) thyrotomy with and without resection of parts of the cartilaginous framework. The chances were, of course, the better the more the operation could be limited to the soft parts; hence he once more urged the desirability of *early* diagnosis and operation.

THE BELGIAN SOCIETY OF OTOTOLOGY AND LARYNGOLOGY.

Continued from Vol. VII., p. 619.

Dr. SCHIFFERS (Liège) read a paper upon *The Pathogenesis of Non-Infectious Croup of the Nasal Mucous Membrane*.

The existence of a non-infectious croup of the mucous membranes, admitted theoretically, appears to be confirmed clinically. This consisted of the formation of false membranes of croupal character in a patient, which existed in great number, and were reproduced with the greatest ease *in situ*, as in true croup of the larynx, trachea, and bronchi. The affection was limited to the nasal mucous membrane, and was not accompanied by general reactionary symptoms, except very slight. There was no sign of infection, particularly of the glands. The subjective symptoms were complete nasal obstruction, respiration through the nose being absolutely impossible, and power of expulsion of the membranes only for a little while, after detachment from the mucous membrane by forceps, or cotton wads, the nasal douche not being practicable. As stated by the author, the macroscopic and microscopic appearances lead to the conclusion that these productions are of croupal character, and due simply to catarrhal inflammation. The membranes are whitish-yellow or grey colour, opaque and resistant, as shown by the action of the needles if used to dissociate a small portion in glycerine or chloride of sodium. The membrane finally breaks into fragments, more or less large, and of

irregular shape, and too opaque for examination under the microscope. At certain spots at the edges, the transparency is sufficient to recognize the texture. Microscopic sections have been obtained by hardening, preferably in alcohol, and they were prepared vertically to the surface of the tissue, and placed in a drop of glycerine. They show that the false membrane is composed of a reticular stroma of fibrine, as shown by its refractive appearance, and that this constitutes the principal portion, enclosing in meshes, more or less large, embryonic cells and white blood corpuscles. The specific bacilli are absent. The mucous membrane subjacent to these membranes was intact. The affection was therefore croupal or superficial diphtheria.

In croup the causes of the disease exert their action in the superficial layers of the mucous membrane and in the epithelium; the vessels situated deeply are, it is true, affected, but are never necrosed as in true or deep diphtheria, so called in distinction from superficial diphtheria, and they give rise to an exudation of long duration.

In order to explain the production of these false membranes in the present case, and others similar to it, it is not necessary to invoke the presence of any micrococcus, as evidenced by the apyretic nature of the disorder and the absence of signs of general infection. The croupous exudation may be produced by a spasm of certain vessels of the mucous membrane, of reflex nature, supervening from some excitation, such as cold, acting on the nasal mucous membrane or skin. If it has lasted a certain time it will lead, at least in the most superficial capillaries, to complete cessation of the circulation, with subsequent return.

The new and repeated production of false membranes is explained in the same manner, the vessels continuing to discharge their functions; the cause being localized, the affection does not extend over the surface; the vaso-motor nerves play the essential *role*; spasmodic contraction, followed by paralysis of the vascular walls. As is easily understood, it is indispensable that the contraction of the vessels may last a certain time to lead to complete arrest of circulation, followed by its re-establishment, and consecutively by fibrinous exudation, which constitutes the croupous membrane.

It is, moreover, necessary for the production of this phenomenon that certain predisposing conditions should exist without any organic alteration of the vessels. The patient affected in these conditions must present a great susceptibility to atmospheric agents, especially to changes of temperature, and will have been affected by different attacks of inflammation or congestion of the mucous membrane. Hypertrophy of the inferior turbinates, among other conditions, will often be a cause; too energetic treatment by the galvano-cautery would appear to influence the condition. This patient had been cauterized severely, and this was followed by a facial erysipelas, which was cured at the end of three weeks. Without incriminating the galvano-cautery absolutely, this would at any rate show the great irritability of the subject. In order to relieve it he had daily recourse to cocaine, used locally, without ever presenting the least sign of intoxication by this drug. But, knowing its mode of action upon the vaso-motor nerves, perhaps it may be permitted to attribute to it

a certain part in the etiology of this croupous form, which is pretty rare. The patient who is the subject of this study was cured in two to three weeks without confinement to the room, although nasal respiration was absolutely impossible. The general symptoms have remained but slightly pronounced. Treatment has consisted in the employment of alkaline solutions, under the form of swabbings with forceps, and of injections of boracic vaseline.

Dr. DELSTANCHE had seen a similar case. It was that of the wife of a colleague, who expectorated ramified membranous cylinders resembling croupous membranes. There was no fever, but great difficulty of respiration. These attacks recurred every three or four months.

Dr. BAYER said that galvano-cauterization often produced false membranes, which iodide of potassium cured very well.

Dr. GORIS was sceptical as to the real nature of the false membranes. It was not always easy to determine the question, for it is sometimes only at the fourth examination that Loeffler's bacilli have been found.

Dr. SCHIFFERS said that the galvano-cauterization of his patient had been practised long before, and there had never been any false membranes. It had only followed upon facial erysipelas, and he recalled the fact in order to show that he was predisposed to catarrhal inflammations, and to find there one of the etiological causes of the affection. As to Loeffler's bacilli, they are not difficult to find.

Dr. CHEVAL said that the terminology should be clear, since the bacillus of Loeffler is characteristic of a contagious and infectious disorder, and we cannot speak of superficial diphtherias which are non-infectious, nor of diphtheria without Loeffler's bacilli. Diphtheritic false membrane necessitates the presence of Loeffler's bacillus, and if this is not present the process is one of pseudo-membrane.

Dr. SCHIFFERS did not hold to his appellation; he would just as well call it pseudo-diphtheritic exudation.

Dr. GOUGUENHEIM.—False membrane and diphtheria ought not to be confused. The staphylococcus, the streptococcus, and the pneumococcus, etc., give rise to membranous exudations without diphtheria. In France, the uncertain term of croup is rejected.

Dr. WAGNIER.—Pseudo-membranous inflammations of the nasal fossæ are subject to recurrence, especially if energetically treated. He was satisfied with using a feeble solution of resorcin and cocaine.

Dr. SCHIFFERS presented the temporal bone of a man who had received a *Traumatism of the Ear*. The study of traumatism of the ear is always interesting when the lesion is seated in the tympanic cavity. They may produce not only affections of the apparatus for transmission, but by their results upon the labyrinth, even where this is not directly affected, they may lead to functional disorders, sometimes considerable, of the nervous apparatus. The diagnosis of the lesions or their complications is not easy. The etiology and direct examination methodically conducted are necessary to arrive at an exact idea of the nature of the accident. These conditions have led Dr. Schiffers to present a specimen, viz., the left temporal bone of a patient who had succumbed to purulent meningitis

following upon pronounced traumatism of the middle ear and labyrinth. Vertical sections, made across the drum and in front of the tympanum, allowed it to be observed that this had disappeared entirely, literally detached as it was from the osseous circle. The malleus alone had remained intact and fixed at its superior part, the other ossicles had disappeared, carried away by the foreign body, which consisted of a small leaden ball, which had penetrated the middle ear directly across the tympanum. At the moment of the accident the patient was inclined in such a fashion that the ball had penetrated without obstacle into the ear, and had produced great mischief from burning as well as mechanically. A facial hemiplegia, which was produced instantly, indicated that the Fallopian canal had been severely wounded as well as the facial nerve. The auditory nerve was also implicated, as proved by the absolute deafness which immediately followed the accident.

The outflow of cerebro-spinal fluid which occurred next day in great abundance, at the first cleansing, made it certain that it occurred through the internal auditory meatus, in cases of this kind, without any fracture of the base. It is very wrong to diagnose this with certainty when cerebro-spinal fluid appears externally after fracture of the cranium. This is an important point, and Dr. Schiffers discussed the value of this sign in the diagnosis of traumatic lesions of the cranium. Upon careful examination of the condition of the auditory function, it will very often be possible to exactly circumscribe these latter.

Dr. DELSAUX (Brussels).—*Syphilitic Labyrinthine Otitis.*

The young girl, the subject of this notice, had awakened suddenly one morning with right facial paralysis, and complete deafness of both sides. External examination revealed nothing on the left side, but on the right the tympanum was infiltrated, and there was absence of perception of the tuning-fork. The suddenness of the onset, and the bilateral character of the affection suggested syphilis, which the patient admitted. Iodide of potassium was administered, and after six days' treatment the tuning-fork was heard on the left side. Dr. Delsaux asks why should the treatment have only acted upon one side? Should there be admitted the existence of an anterior affection on the one side? However that may be, improvement continued, and partial but satisfactory restitution occurred. Complete cure is rare.

Dr. EEMAN had obtained complete cure in all forms of syphilis of the ear, congenital, acquired, or late. He recommended mixed specific treatment, along with subcutaneous injections of pilocarpin, as recommended by Politzer.

Dr. DELSAUX admitted the possibility of cure when the patient is treated from the first. Mercurial substances might perhaps be introduced directly into the tympanum, in the form of grey ointment, in order to reach the site of the disease.

Several speakers feared the irritating action of this method.

Dr. LAURENT (Brussels).—*Bacteriological Researches upon Ozena.*

Many varieties of microbes have been described. The affected nasal mucous membrane offers an excellent culture ground. The specificity of

one particular microbe cannot be concluded from its presence. In any given culture there are certainly elements which cannot be reproduced, and among these can be found the special pathogenic agent. Nothing positive is known as to the origin of the affection from a bacteriological point of view, since at first the ozæna is unperceived for a long time; later on, the micro-organisms become too various to recognize their action. From the author's researches it is shown that none of the varieties suspected of being specific occur constantly. New researches are necessary.

Dr. HENNEBERT (Brussels).—*Foreign Body in the Ear.*

A child, eight years of age, had introduced a button into the ear. By maladroit efforts it was pushed through the drum into the tympanum; it was endeavoured to obtain its extraction by injections directly through the Eustachian tube, and by forceps and hook. The channel was retracted by inflammatory swelling of its walls; it was dilated by sponges, and renewed efforts were made at extraction. The foreign body could only be moved. Suppuration became considerable, and radical intervention was thought of. Under chloroform the "pavillon" was detached, and severe hæmorrhage resulted from the swelling of the tissues. After tamponing and washing with Pagliari water, the hæmorrhage was arrested, and the foreign body could be perceived. After the first trials at extraction with the hook the hæmorrhage recurred more abundantly; it was necessary to gouge the posterior part of the canal to expose the button. After many attempts it was extracted, having been broken into three pieces by the efforts at extraction. The parts were sutured, and dusted with iodoform, and cure resulted in a few days, in spite of a slight attack of erysipelas. A little atresia of the meatus exists.

Dr. DELIE (Ypres).—*Three Cases of Otitis Caries.*

1. A woman, aged twenty-three years, with otorrhœa of the right side, which had existed since infancy without treatment. There was vomiting, continuous vertigo, and great elevation of temperature. The meatus was filled with sanious fluid. Caries of the upper wall was detected with a probe. The mastoid region was red, œdematous, and very painful. Trephining the mastoid gave issue to a large quantity of pus, but the general condition remained bad. After three days, following upon sub-delirium alternating with coma, left hemiparesis occurred. After separating the auditory meatus from the upper wall and exposing the wall of the attic, vigorous curetting with Politzer's curette was employed. There was a sub-meningitic abscess of the middle cerebral fossa. Improvement followed the evacuation of the pus, and sensibility reappeared. But suddenly a violent rigor occurred, with cephalalgia and vomiting, and death followed rapidly. Had a new abscess formed with meningitis?

2. A man, aged twenty-five years, with very old neglected discharge. Pain in the mastoid region and half the head, fever, and fetid otorrhœa were present. The probe showed denuded portion on the internal aspect of the attic wall. Cleaning with wads provoked vertigo. Some injections, followed by scraping with a curette, caused violent and prolonged vertigo,

which stopped further operation. Ten days later, meningitis and general tetanic condition supervened. Mastoid trephining gave no result, and death occurred rapidly.

3. Bilateral otorrhœa, dating from infancy. One side was cured rapidly, on the other side there was old facial paralysis. The attic was filled with polypi, the bone was exposed, and, during cleansing of the ear, vertigo and true convulsions of the facial muscles occurred. Under anæsthesia the tympanum was exposed along with the ossicles. At the end of three weeks cure followed, but the old facial paralysis was not improved.

Dr. DELIE exhibited some *lateral laryngeal forceps*, designed for a special case, where a polypus was only slightly visible, and situated upon the inferior surface of the vocal cord. With these new forceps the growth was removed.

Dr. SCHUSTER (Aix-la-Chapelle).—Some remarks upon *Suppurations of the Deep Sinuses of the Nose*.

The importance of examination with the probe of the nasal cavities was insisted upon. Grünwald, in his latest work, recommends probing the nasal fossæ, but recognizes that Schuster had previously insisted upon the importance of this method. The author lately saw a patient who had had erysipelas twelve years before, and whose nose had suppurated ever since. Though polypi had been removed, probe examination had not been made. When Schuster saw the patient, the middle turbinated was covered with polypi, and when these were removed pus was seen to descend from the superior parts. A probe passed in this direction met with exposed bone $8\frac{1}{2}$ centimètres within the nasal cavities. Without the discovery of this carious spot, no cure could have been possible. Probe examination is necessary even in specific lesions, contrary to the opinion expressed by Grünwald, in order to determine the situation of the disease. General specific treatment could only suspend or limit the necrotic process.

Dr. NOQUET (Lille) showed a *Large Aural Polypus*.

It was 35 millimètres long, and occurred in a very old lady, who had had it since her youth without any inconvenience. The part projecting from the ear was of very woody hardness. The author wished to extract it piecemeal by the galvano-caustic loop, but the patient exhibiting fright, it was removed by forceps. The peduncle was situated in the tympanum.

Dr. WAGNIER (Lille) very often made an instrument of prehension of the wire loop for polypi in the ears and nasal cavities. When the tumour is too great to be seized by the wire, he introduces the finger several times into the choanæ. After these manœuvres it is often easy to seize the neoplasm reduced in size. The author exhibited three very large growths extracted in this manner.

Dr. LECOCQ (Warsaw) showed a *Calculus of the Tonsil* of large size, 26 millimètres long by 11 millimètres broad, which was lodged in a large space. This calculus resulted from a recurrence, for which

Lecocq recommended the destruction of the cavity. He had vigorously scraped the walls and swabbed them with a strong solution of corrosive sublimate.

DR. DELSTANCHE (Brussels) presented a *Modified Proceeding for the Extraction of the Malleus*. The usual method of removing the malleus comprised—(1) detachment of the tympanic membrane at its periphery ; (2) section of the tensor muscle ; (3) extraction of the bone. The tenotomy is not free from difficulty and danger. Section of the chorda tympani cannot always be avoided—the stapes may be torn, and the blade of the tenotome may be broken. Politzer and S. Sexton counsel seizing the handle of the malleus very high up and moving it about in order to break down adhesions, drawing it down and removing it. Schwartz performed the latter with Wilde's snare. With the loop he surrounds the handle and the adherent tympanum and tears away. Delstanche employs a method of his own, his proceeding being based upon the play of the articulation of the malleus and incus. If the former is drawn on, the incus is displaced in the same proportions. The play of the articulation of the malleus and incus permit of lateral movements, which allow the disengagement of the head of the malleus, the incus following after upon these movements. The head can be completely disengaged. After having detached the tympanic membrane from its periphery to the handle, the author employs a ring-shaped instrument, the anterior portion of which is shaped as a cutting instrument, which serves as a tenotome. He engages the extremity of the handle of the malleus in this ring, to which he gives lateral movements, and glides it along the handle to the tensor muscle, which he resects by light scissor movements from the cutting part. He then makes lateral movements, and, pushing the instrument as far as possible, draws it towards him, and causes the handle to execute a see-saw movement, which draws it outwards. Delstanche believes that this proceeding much simplifies the operation, and diminishes the risks considerably.

DR. SCHIFFERS.—*Epithelioma of the Uvula and Left Palatine Arch.*

The author showed microscopic specimens of an epithelioma which had involved the whole uvula, and had spread to the palatine arch, and tended to invade the left faucial pillars. The patient was a man of forty-two, a baker by trade. The onset of the disease was not determined, the symptoms having been vague. When first seen by the author there was moderate pain on swallowing, but no spontaneous pain or general symptoms. The voice was slightly nasal, but had not attracted the notice of the patient. The uvula was enlarged, especially transversely, and was immovable and hard, presenting here and there whitish-yellow points, larger than tubercles. The left palatine arch was affected in two-thirds of its extent to about a centimetre from its edge, by a white plaque resembling lingual leucoplasia, but of less shiny aspect. There was no sign of glandular enlargement. The diagnosis appeared easy, and confusion with syphilis or tubercle was not possible. Immediate intervention at this period was certainly justifiable by galvano-caustic treatment. The uvula and arch of the palate, along with some neighbouring

healthy-looking tissue, was removed with the galvano-caustic snare, and the parts were burnt with Paquelin's thermo-cautery. Fowler's solution was given internally in increasing doses. The patient is in good health, and the author hopes that there will be no recurrence, which, however, is probable in consequence of the abundance of lymphatics in this region. The case is mentioned on account of its rarity, and the clear limitation of the process, which justifies the use of the cautery, its mode of application being easy, and permits the possibility of circumscribing the disease better than with a cutting instrument. The insignificance of the subjective symptoms is worthy of remark. They were so slight as to be far from raising the suspicion of severe lesions, which were obvious upon the first examination.

Several absent members had contributed communications, which could not be read owing to the late hour to which the meeting was prolonged.

Hicquet.

LARYNGOLOGICAL SOCIETY OF BERLIN.

Meeting, December 1, 1893.

Dr. FLATAU showed a case of *Empyema of the Sphenoidal Sinus*, which healed after scraping the cavity of the sphenoid bone.

Dr. HERZFELD introduced a female patient, thirty-three years of age, who had been troubled for six years with headaches. These disappeared after the *Removal of Granulations filling the Cavity of the Sphenoid Bone*.

Dr. SCHEINMANN showed a case—a brewer, forty years of age. Great difficulties in swallowing existed along with specific gummatous ulcers on the posterior wall of the pharynx. The patient had been infected with lues six months before. Treatment consisted of injections. In September paralysis, with hemiplegia of the left side, appeared. There were strongly marked clonic spasms on the left side—about one hundred and sixty per minute—of the palato-glossal arch of the soft palate, the posterior pharyngeal wall, and the muscles of deglutition. Scheinmann assumed a central focus as the primary cause.

In the subsequent discussion, GRABOWER mentioned the experiments of Heidenbain, who discovered, after cutting through a nerve, rhythmical spasms of the corresponding muscles, for which reason a peripheral lesion of the nerve could not be *à priori* excluded.

Dr. GRABOWER introduced a patient with *Muscular Paralysis of the Larynx from a central cause*. The patient had marked symptoms of tabes dorsalis, a weak voice, phonatory waste of air. The left ventricular band was immovable in the cadaveric position, with a cavity in the free edge. The lower sterno-cleido-mastoid and trapezius showed no signs of disturbance, and acted normally under application of electricity. According to Grabower there is no connection between the accessorius and the motor functions of the larynx, for he discovered distinct morpho-

logical differences between the cells of the vagus and the nucleus of the accessorius. The nucleus of the ventro-lateral motor-vagus is composed of large cells, with very little interstitial tissue, whilst the dorso-medial sensory nucleus shows smaller cells and more abundant interstitial tissue. Morphologically between the two are the nuclear cells of the accessorius. As a corroboration of this opinion, Grabower referred to the experiment of Deak, who cut through the vagus, removed the peripheral stump, and observed a degeneration of the motor and sensory nucleus of the vagus, whilst the nucleus of the accessorius remained intact. In cases of paralysis of the inner laryngeal muscles and the sterno-cleido-mastoid Grabower presumes a communication between the vagus and the nucleus of the accessorius.

Prof. B. FRAENKEL considered these observations of great physiological interest, but expressed the opinion that, so far as the doctrine of paralysis is concerned, it can make but little difference whether the motor-root is placed in the vagus or in the accessorius.

Dr. LANDGRAF did not consider it proved that the paralysis of the accessorius in tabes is central, since transient paralysis is not rare.

Dr. GRABOWER thought such paralysis central by analogy.

Edmund Meyer.

MEDICAL SOCIETY OF BERLIN.

Meeting, December 13, 1893.

Dr. SCHIMMELBUSCH showed a child, three weeks old, upon whom an operation had been performed an hour and a half after birth for congenital struma, reaching from the chin to the sternum. The tumour consisted of connective tissue intermixed with pieces of cartilage and cysts.

Prof. VIRCHOW considers the term "struma" in this connection is incorrect. He takes it to be a teratoid tumour analogous to the tumours of the mediastinum.

Edmund Meyer.

NOTES.

IN consequence of the large amount of matter on hand, the Editors have been compelled to hold over a number of abstracts for the February number.

THE alteration in the style of the Journal does not indicate any changes in the editorial or contributing staff.

THE
JOURNAL OF LARYNGOLOGY,
RHINOLOGY, AND OTOTOLOGY.

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FEBRUARY, 1894.

No. 2.

Original Articles are accepted by the Editors of this Journal on the condition that they have not previously been published elsewhere.

Twenty-five reprints are allowed each author. If more are required it is requested that this be stated when the article is first forwarded to this Journal. Such extra reprints will be charged to the author.

The Editors are not responsible for opinions expressed in original Articles or Abstracts in this Journal.

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AUTOGRAMS OF NASAL RESPIRATION.¹

By DR. G. SANDMANN, Berlin.

EVERY rhinologist has observed cases in which the nose appears to be considerably narrowed by spurs or swellings of the turbinated bone, or by secretions of some sort or other, although but little complaint is made by the patient about difficulty in breathing : on the other hand, difficulties of this kind are met with when there is no apparent impediment discoverable.

To ascertain the true condition of such cases we have often resorted to the simple means of closing one nostril with the finger, thus forcing the other into activity : the noises produced thereby have acted as guides as to the existence or absence of a defect and its importance.

It is plain that this method permits only of approximate judgments, and that minor stenoses escape notice, while it proves an utter failure in locating the affection ; for if one nostril be closed, the pressure with which the air is forced through the other is proportionately increased, yet altogether overcomes at times a smaller obstacle. The nose seems to give free exit to the air, while this is in reality not the case. In a quiet respiration, however, the breath escapes through that nostril which is normal, while not passing the impeding cause in the affected nostril.

For some time past I have adopted another method in making my examinations. It is very simple, but shows the stenosis so markedly that I have decided to speak about it to-day.

I make my patients breathe through the nose against a plate of glass, a window pane, or some other piece of glass, which I keep for the purpose :

¹ Read at a Meeting of the Berlin Laryngological Society, November 3rd, 1893.

the warm breath, saturated with moist vapour, forms a deposit on the glass, producing a "pneumatype" (breath-picture, "Hauchbild") of the nasal respiration. The plates must not be overheated, lest they fail to show the desired effect.

According to the position in which the plate is held against the nose the figures produced differ in shape. If you hold the plate horizontally the figure will be of a butterfly shape, extending to right and left, separated by a dry strip, produced by the intervening septum.

In a vertical position I let the point of the nose touch the plate. If the nose is quite free and normal the figure produced is heart-shaped. Where the nose touches the plate a mark is left, caused by the moisture of the skin. These heart-shaped figures, of course, vary in shape when one or the other nostril is narrowed or closed. If the obstruction is complete the figure is missing altogether: if it is only partial the figure is smaller than its fellow, or it shows a deviation, as is generally the case when spurs are present. In a like manner it may be determined whether the seat of the stenosis is high or low, according to the appearance of the upper or lower parts of the figure. Hence, it may easily be seen that this method possesses great advantages over the former, and is a great aid to the making of a correct and thorough diagnosis.

The great drawback in this experiment is that the figures produced are of too transient a nature, and it is desirable to adopt a process by which they may be fixed and made permanent, in order to compare them before and after operation. After many experiments I have hit upon the following plan:—

I use pieces of pasteboard covered over with slate-paper. The plate is held vertically against the point of the nose, the patient is asked to breathe upon it, and before the breath evaporates from the surface a fine powder is blown upon it through a pulverizer. Pure pulverized sulphur is excellent for this purpose, but powdered boracic acid or similar substances may be used.

The superfluous powder is easily shaken or knocked off, and there is left a well-marked figure of the breath, a "pneumatype." This is then fixed with a spray of varnish, such as painters use for fixing chalk drawings (a spirit solution of shellac). It may be applied with an atomizer.

In this manner I have produced a number of "pneumatypes" of normal noses as well as of a variety of pathological conditions.

THERAPEUTICS AND DIPHTHERIA, &c.

Rethi (Wien.)—*Endo-Nasal Mirror*. "Prager Med. Woch.," 1893, No. 42.

LITTLE mobile mirror for introduction into the nose.

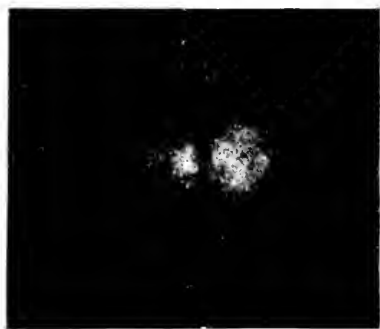
Michael.

Zarniko.—*Self-retaining Nasal Speculum*. Aerztlicher Verein in Hamburg, Meeting, October 24, 1893.

INSTRUMENT shown.

Michael.

A



B



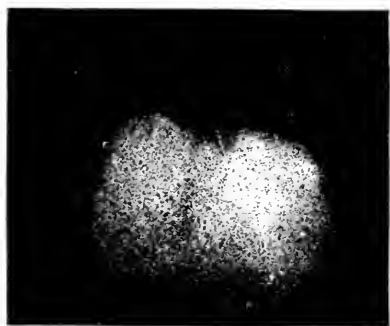
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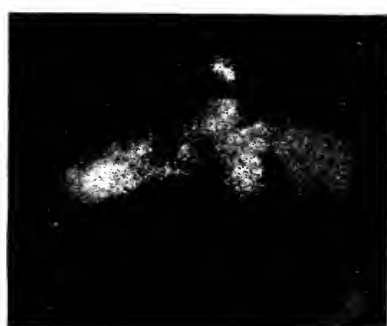
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E



F



(These Illustrations are about one quarter the size of the Originals.)

EXPLANATION OF PLATE ILLUSTRATING DR. SANDMANN'S PAPER.

- (A) Miss M. L.—Both nostrils free.
- (B) M. H. F.—A nasal spur on the right side; operated upon. A small spur is still standing; swelling of the left turbinated. Treated with caustics.
- (C) Mr. W. H.—Nasal spur and swelling of left turbinated bone. Right nostril free.
- (D) Miss M. M.—Hypertrophy of the lower turbinated bones, right and left.
- (E) A case of chronic rhinitis.
- (F) An "S" shaped deviation of the septum on a level with the (swollen) turbinated bone, and the left lower turbinated. Division and deviation of the air current.

Hamilton, Hubert D. (Montreal).—*Guaiacol in Tuberculosis*. "Transactions of the Montreal Clinical Society," June 3, 1893.

THE cases treated by guaiacol were the subjects of laryngeal phthisis as well as of pulmonary disease. All were in an advanced stage of tuberculosis. Eleven cases in all were reported, but in none could Dr. Hamilton see any decided benefit from the treatment. The doses varied from three to twenty minims three times a day.

George W. Major.

Dobie, D. A. (Toronto).—*Inhalations*. "Canadian Practitioner," Jan. 1, 1892. THIS is a plea for the volatilization of drugs for inhalation. The author claims that drugs in a gaseous state are light, uniform and unirritating, and so diffusible that they are carried by the current of inspired air to every part of the lungs. Sprays, atomizers, or nebulizers, whether worked by compressed air or steam, simply effect the division of the drug into minute liquid particles, which are dense, irritating and non-diffusible. Dr. Dobie recommends the "perfection volatilizer" for use as the most perfect means at our disposal.

George W. Major.

Ewer (Berlin).—*Massage of the Mucous Membrans*. "Therap. Monats.," 1893, No. 3.

THE author recommends the vibration massage first described by Braun of Trieste, and describes an apparatus, called concussor, similar to the wheel machine of the dentists, with which he performs the method.

Michael.

Kuttner (Berlin).—*Therapeutics of Ozena*. "Therap. Monats.," 1893, No. 3. REPORT upon the different methods of treatment and description of an apparatus for the inhalation of vapours for cleansing the nose from crusts.

Michael.

Philipp (Berlin).—*Etiology and Statistics of Diphtheria*. "Archiv für Kinderheilk.," Band 16, Heft 3 to 6.

IN the diphtheria ward of the Children's Hospital of Berlin, during the years 1891 and 1892, four hundred and twenty patients were treated. In three hundred and seventy-six cases bacteriological researches were made. In three hundred and thirty-two cases Loeffler's bacilli were found; the others were anginas or acute infectious diseases. The cases of diphtheria bacteriologically proved had a mortality of thirty-nine per cent. One hundred and twenty-three cases were tracheotomized, with thirty-two cures. In seventeen per cent. the diphtheria was followed by paralysis.

Michael.

Reisz.—*Experiences with Diphtheria*. "Pesther Med. Chir. Presse," 1892, No. 19. A REPORT of five hundred and twenty cases, with a mortality of twenty-nine per cent. The treatment consisted in insufflations of benzoate of soda and removal of the membranes with carbolized tampons. The author could not, however, find any visible influence of his treatment on the progress of the disease. The severe cases died as in every method of treatment; the moderately severe and slight cases were cured.

Michael.

Escherich (Graz).—*Diphtheroid Diseases*. "Wiener Med. Presse," 1893, No. 8.

ONLY such cases in which Loeffler's bacilli are found can be called true diphtheria. Diphtheroid diseases are such as show clinical features similar to those caused by other micro-organisms, especially the scarlet fever angina. The author believes that in scarlet fever intoxication enters by the tonsils. Diphtheritic patients and scarlet fever patients should be isolated from one another.

Michael.

Johnston, Wyatt.—*A Ready Method of Cultivating the Bacilli of Diphtheria*. "Transactions of the Medico-Chirurgical Society of Montreal," Nov. 11, 1892.

DR. JOHNSTON procures a hard-boiled egg, cracks it at one end, removes the shell membrane, and thereby exposes a perfectly sterile surface, which may be inoculated with dispatch. The egg may be placed, inoculated end downwards, in an egg-cup, and left in a warm place.

George W. Major.

Frosch.—*The Propagation of the Diphtheria Bacilli in the Human Body*. "Zeitschrift für Hygiene," 1893.

UP to now Loeffler's bacilli have been found only in diphtheritic membranes and in the regions infected. The author was able to find them in fourteen cases of diphtheria examined, also in the blood and the internal organs of the patients.

Michael.

Tobecsin.—*Loeffler's Bacilli in the Throat of Individuals suffering from Diphtheritic Angina*. "Centralbl. für Bacteriologie," 1893, No. 27.

THE author examined forty-six cases which had left the hospital after having been cured of diphtheria. In twenty-four cases he found bacilli some days after cure, sometimes on the sixteenth and twenty-second day, and in one case on the thirty-first day. In none of these cases was the disease propagated to the families of the patients.

Michael.

Ritter (Berlin).—*Etiology and Treatment of Diphtheria*.

THE author concludes that in every case of true diphtheria Loeffler's bacilli are found. By chemical and thermal influences fibrinous exudative processes can be produced, which are similar to true croup. The bacillus has no relation to fibrinous rhinitis. Scarlet fever angina is produced by cocci and is sometimes combined with true diphtheria. The serum treatment up to now has produced only negative results. Diphtheria must be treated by antiseptic procedures.

Michael.

Munk.—*Treatment of Diphtheria*. "Pesther Med. Chir. Zeitung," 1892, No. 5. THE author recommends the external use of ice and internal employment of cognac and milk, locally brushing with creolin solution.

Michael.

Sziklai.—*Croup and Diphtheria*. "Wiener Med. Presse," 1893, No. 9.

THE author recommends the treatment with mercury cyanate and antipyrin. Locally he applies gargling with sublimate one per cent. He is satisfied with the results of this treatment, and obtained sixty-two per cent. cures. With other methods he only obtained fifty-six per cent. cures.

Michael.

Degle.—*Application of Pilocarpin in Laryngeal Croup.* "Wiener Med. Presse," 1892, No. 44.

THE author has applied this drug in four cases, and recommends it.

Michael.

Sziklai (Zombor).—*Laryngeal Croup, and the Cure of Croupous Diseases by Pilocarpin.* "Pesther Med. Chir. Presse," 1893, Nos. 21 and 22.

THE author has treated three cases with this drug, and recommends it, because he believes that by its application secretion of mucus is produced between the mucous membrane and the pseudo-membrane, and that in this manner the pseudo-membrane is removed. [Some weeks before this he was able to cure all cases of diphtheria by mercury ("Wiener Med. Presse," No. 9.)]

Michael.

Fildler (Seibersdorf).—*The Treatment of Pharyngeal Diphtheria (Laryngeal Croup) by Pilocarpin Hydrochlorate.* "Wiener Med. Presse," 1893, No. 2.

THE author has employed this drug in some cases without any therapeutic effect. He concludes that it should not be used in future cases.

Michael.

Romberg (Leipzig).—*Remarks on the Contribution of Dr. Hesse upon the Pathological Anatomy of the Diphtheritic Heart.*

Hesse (Leipzig).—*Answer to Dr. Romberg's Remarks.* "Jahrbuch für Kinderheilk.," 1893, Heft 4.

POLEMICAL articles.

Michael.

Baginsky, A. (Berlin).—*Clinical Symptoms of Diphtheritic Affections of the Kidneys.* "Archiv für Kinderheilk.," Band 16, Heft 3 to 6.

THE author distinguishes the following types. (1) In slight cases morphological elements are found in the urine, followed by albuminuria, which disappears in a short time; hydropsical affections are not observed. (2) Grave cases, usually combined with severe symptoms of malignancy and septicæmia. In the urine are found very many morphological elements, epithelium and very much albumen; the quantity of urine is diminished. (3) Combination of nephritic symptoms with adynamia of the heart. In this form there is prevalence of the cardiac symptoms, but prognosis and treatment are influenced by the nephritic complication in an unfavourable manner. It is not possible to prevent the nephritic complication by any medication. The treatment consists in the use of alkaline waters, such as Vichy and Wildungen, mild preparations of iron and decoction of cinchona. When the albuminuria has disappeared stimulating meat diet, and in cases of adynamia antiseptic medications are indicated. In chronic cases of albuminuria, astringent medications are of great use. The author illustrates his conclusions by some histories of patients.

Michael.

Bernhard and Felsenthal (Berlin).—*Contribution to the Pathological Anatomy of Diphtheritic Kidneys.* "Archiv für Kinderheilk.," Band 16, Heft 3 to 6.

THE authors have examined the kidneys in twenty-four cases of diphtheria with the following results:—Microscopically the organs were sometimes enlarged and hyperæmic, sometimes anæmic. Only in severe cases was

the consistence soft. The microscope showed especially parenchymatous degenerations; of less frequency were glomerulo-nephritis and the pathological degenerations of the connective tissue and the vessels. The details are very minute, and are illustrated by instructive woodcuts, which must be seen in the original. The authors conclude that these degenerations must be regarded as an acute toxic nephritis caused by the poison produced by the diphtheria bacilli.

Michael.

Baginsky, A., and Stamm (Berlin).—*Pathology and Treatment of Scarlatinal Nephritis*. "Archiv für Kinderheilk.," Band 16, Heft 3 to 6.

IN children dead during the first week of scarlet fever we find hyperæmia of the kidneys accompanied by extensive infiltration with round cells; only in rare cases do we remark symptoms of retrogression of the process. During the next few weeks we find the symptoms of acute parenchymatous nephritis. Exact pathological and anatomical researches and illustrations of the microscopical appearances will be seen in the original. Scarlatinal nephritis is of greater influence upon the process of the disease than diphtheritic. A simple diet during the scarlet fever may often prevent the appearance of nephritis, or may mitigate it. Alcoholic drinks and irritating food must be avoided, and constipation be regulated by mild laxatives. Diuretic medicaments must be avoided. Alkaline waters have a good effect. Only in chronic cases should astringent medicaments be applied. In cases of uræmia camphor and chloral hydrate are sometimes of use.

Michael.

Jäger (München).—*Enlargement of the Heart in Scarlet Fever and Diphtheritic Nephritis*. "Münchener Med. Abhandlungen," Heft 41.

ENLARGEMENT of the heart is more rare in diphtheria than in scarlatinal nephritis. This is caused by the lessening of the cardiac energy in diphtheria in consequence of the degeneration of the heart muscle, and by the frequency of glomerulo-nephritis in scarlet fever.

Michael.

Behring and Wernicke.—*Production of Immunity and Cure of Animals affected with Diphtheria*. "Zeitschrift für Hygiene und Infectious-Krankheiten," Band 12, Heft 11.

SEE the report upon Behring's book on diphtheria and his other publications.

Michael.

Duncan.—*Bromoform in the Treatment of Whooping-Cough*. "Transactions, Ontario Medical Association," 1893.

THE author quoted instances where bromoform had been used with little or no result, and others where a toxic effect had been produced. As a narcotic it had an unfavourable influence on the general condition of younger children. Some reports ascribe to it the power of cutting short the paroxysm rather than shortening the course of the disease. He had found that when a small dose proved ineffectual an increased dose gave great relief.

George W. Major.

Bokai.—*Interesting Case of Intubation*. "Pesther Med. Chir. Presse," 1893, No. 21.

A PATIENT, two and a half years old, was intubated on account of severe laryngeal croup. The tube could not be removed because constant attacks

of suffocation followed the attempts. Fourteen days later perichondritis of the larynx supervened. The tube was removed and tracheotomy was performed. Cure resulted, but the canula could not be removed on account of laryngeal stenosis. Fresh intubation was performed, and cure was obtained. *Michael.*

Taub.—*Application of Intubation in Whooping Cough.* "Pesther Med. Chir. Presse," 1893, No. 11.

IN severe cases of whooping cough with attacks of asphyxia, intubation should be applied. The author has used it in two cases with good result. *Michael.*

Fischer (Leipzig).—*Tracheotomy in the City Hospital of Danzig during the years 1882-89.* Inaugural Dissertation.

OF two hundred and thirty-eight tracheotomies, in two hundred and fourteen the operation was performed on account of diphtheria, with forty-eight per cent. cures (one hundred and two cases); two operations were necessitated by foreign bodies, ten by malignant tumours, two by lues, two by glottic œdema, and two by asphyxia. *Michael.*

Ranke (München).—*Intubation and Tracheotomy.* The results of the collective investigation of the Deutsche Gesellschaft für Kinderheilkunde. "Münchener Med. Woch.," 1893, No. 44.

IN four years one thousand three hundred and twenty-four cases of diphtheria and laryngeal stenosis have been treated by intubation, with five hundred and sixteen (equal thirty-nine per cent.) cures. The method is only applied in cases of severe stenosis. It is applied to all degrees of age, and in the youngest children. Of secondary diphtheria, following measles and scarlet fever, one hundred and twenty-one cases have been treated, with twenty-seven (equal twenty-two per cent.) cures. In the first year of life ninety-three cases have been treated, with thirteen cures (fourteen per cent.); in the second year of life two hundred and ninety-five cases, with ninety-two (equal thirty-two per cent.) cures. Of one thousand three hundred and twenty-four cases of intubation, in two hundred and forty-two cases it was necessary to perform secondary tracheotomy, with twenty (equal eight per cent.) cures. Fifty-eight cases with secondary diphtheria and secondary tracheotomy all died. The author also refers to the results of Prof. Wiederhofer in Vienna, who has treated with intubation one hundred and forty-seven cases; with intubation and secondary tracheotomy, sixty-nine cases: with tracheotomy alone, fifty-eight cases. Of these two hundred and seventy-four cases, one hundred and forty-six (equal fifty-three per cent.) have been cured. Of one thousand one hundred and eighteen cases treated by tracheotomy, four hundred and thirty-five (equal thirty-nine per cent.) have been cured. Of forty-two cases of secondary diphtheria, eleven (equal twenty-six per cent.) have been cured. In primary diphtheria both methods gave exactly the same results, *i.e.*, thirty-nine per cent. cures. For both the first years of life the results of intubation are better than those of tracheotomy. The author concludes that the result of the investigation has

shown that intubation is of undeniable value. Secondary tracheotomy gives bad results, and should only be performed exceptionally. It will be indicated if sudden asphyxia arises during the presence of the intubation tube in the larynx, which cannot be cured by removal of the tube.

Michael.

MOUTH, TONGUE, PHARYNX, &c

Morelli (Buda-Pesth).—*Syalolith in the Whartonian Duct*. "Pesther Med. Chir. Presse," 1893, No. 31.

A PATIENT, thirty-six years old, complained of pains in swallowing, and swelling under the tongue. Under the right half of the tongue the author found a swelling the size of a fist. From the right Whartonian duct he removed a stone eight millimètres in length and seven millimètres in breadth, the size of a bean. Cure followed.

Michael.

Partsch (Breslau).—*Congenital Defect of One Half of the Tongue*. "Monats. für Zahnheilk.," 1893, No. 7.

WHEN the patient showed his tongue, the right half seemed to be normal; the left half had an irregular surface. To palpation the right half gave also a normal result, the left seeming to be only mucous membrane in which were some few muscular portions. Without doubt there was a defect of the muscular mass of the left side of the tongue.

Michael.

Lange, F. (Rostock).—*The Movements of the Tongue*. "Langenbech's Archiv," Band 46, Heft 3.

PHYSIOLOGICAL observations on the musculature of the tongue. The paper cannot be referred to shortly, and must therefore be read in the original.

Michael.

Wetmore, F. H. — *A Case of Acute Circumscribed Hemiglossitis, with Suppuration*. "Montreal Med. Journ.," May, 1893.

THE case occurred in the person of a young man aged eighteen years. The symptoms were first observed on the morning following a day when he had been undergoing severe physical strain in a cold atmosphere, and consisted of pain in the tongue, particularly when pressed upon, and difficulty in swallowing. On examination, the finger readily outlined a fulness of the posterior left half of the tongue, which gradually developed into a tumour rather larger than a robin's egg. Two days later the swelling had much increased, and, as suppuration was suspected, it was deemed expedient to open freely. The tongue was drawn well forward, and two deep incisions were made over the tumour to the left of the median line. There was but little bleeding, and no pus was to be seen. In a few hours, however, the discharge, which was offensive, escaped from one of the wounds, giving marked relief to the sufferer.

George W. Major.

Lauverer (Leipzig).—*Angioma of the Tongue; Operation; Cure.* Festschrift für Esmarch, Kiel, 1893.

A PATIENT, fifty-one years old, had an angioma of the size of a fist situated on the left side of the tongue. Prophylactic tracheotomy. Removal of the tumour by elastic ligature, followed by destruction with the Pacquelin cautery, ended in cure.
Michael.

Gutzmann (Berlin).—*On the Treatment of Stuttering and Stammering in School Children.* Sixty-fifth Meeting Deutscher Naturforscher und Aerzte in Nürnberg. Sub-section of Pediatrics.

THE author reports that in Berlin courses are instituted for the instruction of teachers in his method for prevention of diseases of speech.

KAFFEMANN (Königsberg) remarked that the importance of diseases of speech is not sufficiently recognized, and said that many of the cases (forty per cent.) are combined with obstruction of the nasal passages; therefore all children should be examined with regard to their noses.

RANKE (München) said that in Munich also courses are instituted for the improvement of nasal diseases.

ALSBERG (Cassel) asked if any relation has been observed between disorders of speech and left-handedness and idiocy, and if any relation is found between disorders of the speech and anomalies of Broca's speech centre.

GUTZMANN did not believe any such relation.

Michael.

Hamilton, Hubert D. (Montreal).—*Epithelioma of the Soft Palate.* "Transactions of the Medico-Chirurgical Society," April 14, 1893.

DR. HAMILTON reports this case of epithelioma of the soft palate, occurring in a woman aged forty-five, whose father died of cancer of the tongue at fifty-five years of age. The disease commenced in the case under consideration as a small sore on the anterior face of the soft palate to the right of the median line. The course was characterized by extensive ravages of neighbouring parts, and lasted over twenty-one months. Successive attacks of "la grippe" aggravated the severity of the disease, producing exacerbations, which subsided after each acute attack.

Post-mortem, the naso-pharynx could be felt a crumbling mass of superficial ulceration. The whole of the soft palate was absent; no bare bone could be felt. The parts removed showed bone attacked, viz., the greater ala of the hyoid bone on the right side. To enumerate the parts affected: we have the walls of the pharynx and naso-pharynx, the soft palate, fauces and tonsils, the larynx externally and internally on the right side. Externally the superior ala of the thyroid cartilage was absent, and internally the disease had reached the true vocal cord. The right half of the epiglottis was removed by ulceration, and the tongue immediately in front was infiltrated throughout its whole width, while the right side towards the tip was deeply ulcerated. Prof. Adami, who made a study of the pathological features of the case, declared, as the result of extensive and careful research, that the condition was one of *atypical* epithelioma. The case is of unusual interest, and is reported with the care and detail it merits.

George W. Major.

Fischer (Heidelberg).—*Bleeding from Uvula and Tonsils.* "Deutsche Med. Woch.," 1893, No. 42.

A PATIENT, thirty-five years old, was suddenly attacked while eating bread with hæmorrhage of the mouth and pain. The examination showed hæmorrhagic infiltration of the uvula and tonsils, caused by a bristle which was situated in the uvula and the right tonsil. *Michael.*

Bennett, O. Prescott.—*Hypertrophy of the Pharyngeal Tonsil.* "Journal of American Medical Association," Nov. 19, 1892.

THE question of heredity is said not to be determined yet, and that of climate exaggerated. About sixty per cent. of patients with enlargement of the oral tonsils suffer from enlarged pharyngeal tonsils. Exanthems and colds are said to cause both diseases. Snoring is said to be caused by vibration of the soft palate, which is thrust forward and downward by the growth. The dyspnœa occasionally present at night resembles laryngismus stridulus. Aural disease is said frequently to occur—probably by stagnation and rarefaction of air in the vault of the pharynx and Eustachian tubes, caused by the obstruction to nasal respiration. Cough is due to mouth-breathing and secretions finding their way into the pharynx and larynx. Epistaxis is somewhat rare. The children are unusually stupid, and the facial expression noted, especially the broadening and flattening of the nose. Nasal fossæ small, and inferior turbinated enlarged, and granular pharyngitis frequently present. The differential diagnosis from fibrous tumours of the naso-pharynx, pharyngeal abscess, mucous polypi, and posterior hypertrophy of inferior turbinated bodies, is dealt with. In seventy-five per cent. of the cases the growth atrophies by the age of fourteen or fifteen, but with frequent irreparable damage to hearing, voice, or health. Removal by forceps or curette. Caustics and galvano-cautery only where operation is refused. Anæsthesia always for children. Cocaine anæsthesia for adults is recommended. In the former the lateral position is advised. The mixture of

R Atropinæ sulph.	gr. 1
Strophanthin	, 1½
Acidi carbolici	grs. v.
Olii caryophilli	, v.
cocainæ muriatis	, xx.
Glycerine	℥iv.
Aq. q.s. ad.	℥j.

is recommended as safer and more durable than the ordinary cocaine solution. *R. Lake.*

Goldscheider.—*Bacterioscopical Researches in Tonsillar Angina and Diphtheria.* "Zeitschrift für Klin. Medicin," 1893.

ONLY of bacteriological interest. *Michael.*

Wroblewky (Warschau).—*Contribution to Pathology and Treatment of the Lingual Tonsil.* "Wiener Med. Presse," 1893, Nos. 10, 11, 12, 14, and 15.

GOOD review, with special reference to literature. *Michael.*

Brandenburg (Zug).—*Angina Oidica*. "Correspbl. für Schweizer Aerzte," 1893, No. 20.

IN two cases of sore throat the author found, upon examination of the secretion of the crypts of the tonsils, the organism *oidium albicans* to be present.
Michael.

Nichols, J. E. H.—*Rheumatoid Pharyngitis*. "Ann. of Ophthal. and Otol.," Oct., 1893.

(a) MYALGIA pharyngitis—no affection of mucous membrane, only of muscles of pharynx and anterior cervical region; (b) chronic hypertrophic pharyngitis—may have acute exacerbations; (c) acute catarrhal pharyngitis; (d) pharyngeal neurosis. Males suffer more frequently (five to three); all have rheumatism in family, or gout, affected by atmospheric changes. They all suffer with attacks of sharp, rasping pain in the pharynx, often in the salpingo-pharyngeal fold, and are relieved by salicylates.
R. Lake.

Solis-Cohen, S.—*Some of the Throat-Conditions observed in Gouty Subjects*. "Medical News," Nov. 4, 1893.

AFTER touching upon the observations of Harrison Allen, Sir William Roberts, Hinkel, and J. Solis-Cohen, he observes that these throat manifestations are often first seen in their stage of an acute exacerbation, and so the real diathetic origin is missed, but the urine or history of the uric acid diathesis points out the cause. Inflammation is not necessary, but pruns and perverted sensations exist, often described as "spots." One he quotes just behind the free border of the palate, sometimes the region of the epiglottis, base of the tongue, and so on; they are sometimes sensitive to the touch. In acute exacerbations the chief objective symptoms are the presence of dilated blood-vessels over the spot; the mucous membrane is dusky, or a follicle enlarged and inflamed; sometimes general or patchy congestion; the larynx is similarly affected; tongue red, thick and somewhat furred; mucous membranes relaxed, especially over the arytenoids and ary-epiglottic folds; vocal cords pink or red, voice hoarse, worse in the morning and after meals; fatigue after use of voice; Luschka's tonsil enlarged; maybe nasal obstruction. For treatment cocaine, menthol in liquid petrolatum, iodine and carbolic in glycerine, aconitine oleate two per cent.; hot gargles and sprays, and internally, those useful in the general disease and strontium bromide. Three cases are quoted. In the first the pharynx presented, besides the symptoms described, a number of prominent follicles surrounded by reddish whorls of dilated vessels. In the second there was a burning sensation referred to the pharyngeal wall at the seat of an enlarged follicle, also the middle turbinates were red and swollen. The last presents most of the symptoms as above, with pain referred to the upper part of the chest.
R. Lake.

Huber (Zurich).—*Cesophagus Diverticulum*. "Deutsches Archiv für Klin. Medicin," Band 52, Heft 1 and 2.

A DETAILED description of the specimen of a diverticulum observed in a patient eighty-eight years old, who could not swallow normally for many years.
Michael.

NOSE AND NASO-PHARYNX, &c.

Suchannek, Hermann (Zurich).—*Contribution to the Microscopic Anatomy of the Human Nasal Cavities, particularly of the Olfactory Mucous Membrane* "Arch of Otol.," Oct., 1893.

AMONG other points, Suchannek has arrived at the conclusion that alterations in the epithelium may go on independently of those in the tunica propria—as, for example, alterations in the epithelium with an intact tunica propria and a normal epithelium, beneath which is oedema of the connective tissue and catarrh of Bowman's glands. He has repeatedly observed pathological cystoid enlargement of these glands. He has never obtained a good view of the olfactory hairs. *Dundas Grant.*

Lange, Victor (Copenhagen).—*Rare Case of Polypus of the Septum.*

POLYPI of the septum are rare. The author has observed six such cases. In one of these there was a black round tumour the size of a plum. Extirpation was effected with the sharp spoon. The microscopical examination showed it to be a soft fibroma. *Michael.*

Zarniko.—*Nasal Polypus.* Aerztlicher Verein in Hamburg, Meeting, October 24, 1893.

AUTHOR showed a case. *Michael.*

Roth (Wien).—*Hypertrophy of the Nasal Mucous Membrane.* "Wiener Med. Presse," 1893, Nos. 10 and 11.

GOOD review. *Michael.*

Dreyfuss (Strasburg). *Malignant Epithelial Tumours of the Nasal Cavity.* "Wiener Med. Press," 1892, Nos. 36, 37, 38 and 40.

A PATIENT, sixty-four years old, had for thirty years a purulent nasal catarrh. The examination showed the presence of some tumours in the right nasal cavity, and empyema of the frontal and ethmoidal sinuses. Operation was performed by galvano-cautery. The microscopical examination showed that the tumour was a carcinoma. Some time later death occurred from meningitis. The author reviews the literature of the subject, and concludes that malignant tumours of the nose are rather rare, and that a radical cure has not in any case been obtained. *Michael.*

Hecht (Lohnan).—*Removal of Foreign Bodies from the Nose.* "Therap. Monats.," 1893, No. 8.

THE author extracts foreign bodies from the noses of children by the aid of a hair-pin during narcosis (!) *Michael.*

Grünwald (München). — *Further Contributions to the Question of Ozena.* "Münchener Med. Woch.," 1893, Nos. 43 and 44.

THE author concludes:—Ozena is a complex of symptoms. Up to now it is not possible to construct a general etiology. The cause of fetid

dry secretion often cannot be found. Such cases should be called cryptogenic ozena, but in all of them we must try to find the cause by careful examination, especially of the accessory cavities. There is no cause to believe that ozena is the consequence of a dyscrasia; more probably dyscrasic conditions are caused by the fetid secretion. The existence of genuine atrophy of the nose up to now has not been proved. Causal diagnosis can only be found by the results of causal treatment. The author relates some histories from his experience, proving the cure of ozena by treatment of the accompanying diseases. *Michael.*

Roth (Wien). — *Habitual Epistaxis*. "Wiener Med. Presse," 1893, Nos. 23 and 24.

GOOD review.

Michael.

Chiari (Wien). — *Tuberculomata of the Nasal Mucous Membrane*. "Archiv für Laryngologie," Band 1, Heft 2.

THE author reviews the cases published up to the present time, and then reports six cases from his own experience:—

1. A patient, sixteen years old, with obstruction of the nose. On both sides of the septum granulations and tumours existed. There was no disease of the lungs. The microscopical examination of the extirpated tumours proved their tubercular nature.

2. A patient, nine years old, affected for half a year with obstruction of the nose. On the left side of the septum a yellowish tumour existed. Extirpation by the cold wire; enucleation, and galvano-caustic after-treatment. One year later, recurrence. A second operation was undertaken, from which arose perforation of the septum. No disease of the lungs existed. The microscopical examination showed the tubercular nature of the tumours.

3. A patient, forty-two years old, with swelling of the nose following influenza. Hard granulations of the septum. Extirpation. No disease of the lungs. The microscope showed the tubercular nature of the tumours.

4. A patient, twelve years old, affected for a year with obstruction of the nose. On the left side of the septum a pedunculated tumour the size of a nut existed. Extirpation. During the next few months there were two recurrences, and these growths were extirpated. The microscope showed tuberculosis.

5. A physician, twenty-nine years old, who some years before had hæmoptysis, had a tumour the size of a nut on the left side of the septum. Extirpation. The microscope showed the tubercular constitution of the tumour and the presence of tubercle bacilli.

6. A patient, forty years old, suffering from obstruction of the nose. The rhinoscope showed the nose to be filled with large tumours, and the existence of a perforation of the nasal septum. An extirpated piece showed tubercular structure.

The author concludes that tubercular tumours of the nose are caused by tubercular infection of small wounds of the septum. These tumours must be extirpated as radically as possible. *Michael.*

Herzog, M.—*Tuberculosis of the Nasal Mucous Membrane, with a Report of Ten New Cases.* "American Journal of Med. Sciences," Dec. 1893.

THE mode of primary infection is considered to be by invasion of the nasal mucous membrane by the bacilli. The factors preventing this are especially the ciliated epithelium and mucus, as well as the thickness of the epithelium and the usual migratory leucocytes where the former is not present. Of the ten cases, nine were in Dr. Otto Seifert's polyclinic at Würzburg, and one in the author's private practice in Cincinnati.

The first case came under treatment in 1886, and suffered as well from eye trouble (dacryocystic blennorrhœa, left); the nasal trouble was chiefly confined to the left lower turbinated body, and also quite late in the case (1890) to some thickening of the septum at the posterior nares. The second suffered with facial lupus, and previously from nasal lupus. The form here was chiefly ulcerative, and involved the right floor of the nose and both inferior turbinated bodies at different periods. The third case had suffered from nasal tuberculosis previously. There was an ulcer on the left inferior turbinated bone; later on the right floor and the cartilaginous septum, which perforated during a period of neglect of treatment, and the right lower turbinated body. The fourth had also had a previous attack, ulceration of the left side of the cartilaginous septum, and a small tumour on the left inferior turbinated body. The fifth previously suffered from tuberculosis of both naso-lachrymal ducts; the right floor, ostium nasale lachrymalis, and anterior end of left inferior turbinated body ulcerated. The sixth had had a previous attack: the tumour was the size of a hazel nut springing from the right middle turbinated body. The seventh had ulceration of the left cartilaginous septum. The eighth suffered from dacryocystic blennorrhœa, ulceration, and tubercles of the inner side of right ala; later on of the septum, which perforated. The ninth had a tumour the size of a hazel nut on the left inferior turbinated body. The tenth—this patient was the subject of marked pulmonary phthisis—an oval, extensive ulcer of right septum near the floor, from which he had had copious hæmorrhage. The author then proceeds to give a table of eighty cases, including the foregoing, and analyzes them. Twenty were probably primary tuberculosis of the nasal structures; in thirty-six ulceration predominated; in twenty-nine the disease was in the form of a tumour; in eight it was of a mixed character. The tumour form is surmised to be caused by a few bacilli, and the ulcerative by a large quantity, able by their numbers to immediately effect ulceration. In the secondary form he admits either auto-infection from dried sputa, etc., or by blood and lymph conveyance, though he considers it very improbable. In twenty-five cases tuberculosis of the lungs and larynx is the primary affection; ten times is tuberculosis of the pharynx, palate and tongue mentioned. As to the seat of the lesion, in fifty-three times it was the septum, almost invariably the cartilaginous portion, viz., fifty-two times, frequently leading to perforation; the lower turbinated, eleven; the middle turbinated, three; the inner side of alæ, four; the floor, four times. No details given in ten cases. Sex has no influence; the majority of cases occur between eleven and forty years of age.

The tumours are roundish, granular, and uneven, greyish-yellow in

colour, or grey, and bleed readily. The ulcerations are generally shallow : bacilli when found are present in the deeper layers of the tumours ; the cells frequently aggregate round vessels and proliferate through the walls, but do not simulate syphilitic vessels ; crusts and discharge are frequent. The frequent occurrence of lupus of the face and nose and inner canthus of the eye is dwelt upon, as are the various differential diagnoses. For treatment, free removal, scraping, cauterization with chromic or trichloroacetic acid, or galvano-cautery and antiseptics after, but relapses are frequent.

R. Lake.

Birkett, H. S.—*Empyema of the Antrum of Highmore.* "Montreal Med. Journ.," March, 1893.

THE author discusses the question of antrum disease in a very thorough manner. The paper is an excellent exposition of the present state of our knowledge of the subject. Seven original cases were communicated, and the diagnostic value of transillumination was demonstrated on a patient suffering from the disease.

George W. Major.

Fink (Hamburg).—*Malignant Transformation of Benign Tumours of the Antrum of Highmore.* "Archiv für Laryngologie," Band 2, Heft 1.

THE author reviews the literature of the subject and then relates the following case : A patient, thirty-three years old, was affected since his youth with obstruction of the right half of the nose. In his twelfth year polypi were diagnosed and operated upon from time to time, but they always recurred, and since 1879 a polypoid degeneration of the antrum of Highmore was suspected by Esmarch, and the opening of the sinus was proposed, but was not allowed by the patient. When the author first saw the patient in 1889 a protrusion of the upper maxillary region was observed, and the nose was found to be filled with polypi. The polypi were removed, and during the next few years a great many polypi were also removed. In August, 1892, the patient had severe pains in the right upper jaw : at this time the nose was comparatively free. Extraction of a tooth was of little avail, and various anti-neuralgic drugs were applied without effect. It was now believed that there was an empyema of the antrum of Highmore. The sinus was opened but only a little pus was removed, and the presence of masses of tumours in the sinus could be determined. Some time later the zygomatic bone appeared to be swollen. The upper jaw was now resected after Nelaton's method by Dr. Schede. The examination showed that there was a carcinoma. Some days later pains in the neck and swelling of the vertebrae of the neck occurred. Death followed from cachexia. In this case no doubt can exist that benign fibro-myxomata are transformed into carcinomata. This is proved by the progress of the disease, and by the result of the microscopical examination.

Michael.

Leiderman, M. D.—*Adenoids a Contributive Factor in Aural Affections.* "Ann. of Ophthal. and Otol.," Oct., 1893.

A SHORT review of the subject, without any new matter, and three cases illustrating the curative effect of their removal in cases of otitis media purulenta.

R. Lake.

Fraenkel, B. (Berlin).—*Adenoid Vegetations*. "Eulenburg's Realencyclopædie." EXCELLENT review of the pathology and treatment of this disorder, with good illustrations. *Michael.*

Otto (Dorpat).—*On Enuresis Nocturna, and a Case of this Disease complicated by Obstruction of the Nose*. "Petersburger Med. Woch.," 1893, No. 38.

A LADY, eighteen years old, with enuresis nocturna, and treated ineffectually by every other means, was cured by the author by operating upon adenoid vegetations which were present. A recurrence was cured by galvano-cauterization of a synechia between the septum and turbinated bone. *Michael.*

LARYNX.

Brown, Price.—*A Case of Elongation of the Epiglottis*. "The Canadian Practitioner," Oct., 1893.

THE patient was a young lady of twenty-three with a strong tubercular family history, and was said by her family doctor to have apical disease. The respiration during childhood was whistling; she took cold easily, always with concomitant hoarseness and sometimes aphonia, and had great difficulty in clearing the throat from mucus. The epiglottis was long and narrow with the end turned up, and occupied a horizontal position, the free end meeting the pharynx in inspiration and slightly raised during expiration. The epiglottis was shortened to about a quarter of an inch by repeated applications of the galvano-cautery. When the treatment was completed the vocal cords were visible, and the total result most satisfactory. *R. Lake.*

Bennett, O. Prescott.—*The Falsetto Voice*. "Med. Record," Nov. 3, 1893.

THE divisions known as "lower chest," "upper chest," and "throat register," and in females also "second falsetto" and "head register," are discussed briefly, and the change of the male voice at puberty, with brief allusion to the persistence of the boy's voice on its ascent into falsetto. The want of change is said to be due to the improper use of the muscles of phonation, retraction of abdominal muscles, which restrains and renders tense the chest and neck muscles, and is considered chiefly habit by the author, though, as in Lincoln's case, the removal of a pharyngeal tonsil cured the trouble. The author quotes a case of a male, aged twenty-one, who had a high falsetto voice, though he could speak a few words in the lower register, becoming rapidly tired in the attempt. The larynx was markedly congested from overstrain of the voice. When he sang in the high register the glottis was reduced to a mere slit, and the edges of the cords alone vibrated. Now, when he sings in the low register, the vocal chink is larger and elliptical, and the whole cord, and indeed the walls of the larynx, vibrate. The cure consisted in proving and convincing the patient that the high voice is not the normal one, and that he can use the lower one. He advises keeping away from business for a few days, and having regular lessons in the normal key. *R. Lake.*

Kayser (Breslau).—*Case of Hysterical Dumbness*. "Therap. Monats.," 1893, No. 8.

A PATIENT, twenty-three years old, had a laryngeal catarrh in his eighteenth year. He was treated that time by electricity, and suddenly became conscious for a short time. These attacks ended in the loss of speech. The attacks of consciousness were repeated sometimes; the ability to speak did not reappear after this. He now came under treatment by the author. When he was treated with electricity, spasms of the muscles of the neck followed. The larynx showed a slight catarrhal condition. When he tried to phonate the vocal bands came for a moment into the middle line, but then separated from one another. Without doubt there is *apsithyria*. Cure was obtained by exercises and suggestion.

Michael.

Grayson, C. P.—*An Instance of Spontaneous Healing of an Ulcerative Tuberculous Laryngitis*. "Med. News," Nov. 4, 1893.

THE patient, when first seen, had advanced pulmonary tuberculosis with bacilli present in sputum. The larynx showed cicatrices of the posterior extremities of ventricular bands, a tuberculous vegetation in the meso-arytenoid fold, only a narrow fringe of the vocal cords remained, the processi vocales were destroyed. His history was as follows :—He was twenty-five years old. Seventeen months previously he got tipsy and shouted and sang a good deal. Two days later he lost his voice and had pain on attempting phonation. Two weeks later the pain went; he then began to lose flesh, having now lost forty pounds. Five months after the loss of voice he had an attack of hæmoptysis and a cough commenced. He had had no treatment. The probable course was non-recovery of the voice after the simple laryngitis, progressive loss of weight and hæmorrhage with cessation of laryngeal trouble and attack of the larynx, and the author deduces that the lung was not the original site of disease, but the bacilli entered through the erosions in the laryngeal mucous membrane during the laryngitis.

R. Lake.

Bennett, O. Prescott.—(1) *Anchylosis of the Crico-Arytenoid Articulation, and* (2) *Congenital Bony Occlusion of the Posterior Nares*. "Annals of Ophthalmology and Otology," Vol. II., No. 1, Jan., 1893.

(1) A BUTCHER, aged thirty, complaining of weak and hoarse voice, has occasional pains in limbs, no history of syphilis, has had rheumatic fever with laryngeal pain, slight dyspnœa on exertion. Left vocal cord fixed, its posterior third swollen and congested, left arytenoid also swollen and congested, some nasal stenosis. Nasal stenosis was treated, and in four months, under iodide of potash, the swelling and congestion of the larynx disappeared, but the cord remained fixed. These cases are very rare. Causation may be due to chondritis, perichondritis, synovitis, and trauma, perhaps paralysis. Perichondritis may be primary or secondary, due to enteric fever, syphilis, typhus, synovitis (gouty, rheumatic or simple). Rheumatic anchylosis is exceedingly rare. Its chief diagnostic symptoms are fixation of one or both cords, with marked irregularity of the arytenoids or upper part of the cricoid.

(2) The origin of this malformation is obscure and congenital. The patient, a male of eighteen years, had never been able to breathe through the right nostril, and had no sense of smell on that side and but little on the left; he also suffered from severe frontal headache; the right side was constantly plugged with mucus. Anterior rhinoscopy. The septum deviated to the right in its posterior third, completely closing the cavity. By posterior rhinoscopy the right nostril was seen to be completely occluded. This bony occlusion was perforated with a trephine three-eighths of an inch in diameter, and enlarged by a burr to its full size, both instruments being driven by an electro-motor. The cure was complete, the sense of smell being improved also.

R. Lake.

Newcomb, J. E.—*Rheumatism of Crico-Arytenoid Joint.* "Ann. of Ophthal. and Otol.," Oct., 1893.

A SHORT and clear account of the affection and its usual treatment. The symptoms quoted are disagreeable sensation at angle of jaw, generally relieved by pressure, which frequently elicits crepitation, increased by swallowing—swelling may or may not be present; "chorea" of the vocal cords may be present; swallowing generally easy at first, dysphagia later: cords become fixed midway between ab- and ad-duction.

R. Lake.

Künne.—*On Lipomata of the Upper Air-Passages.* Inaugural Dissertation. Würzburg, 1894.

REPORT on the cases published up to now, and a description of a microscopical examination (in the report a case published by Schuchardt is not mentioned), and report of the case of a patient operated upon by Köhler and not yet published. A patient, forty-five years old, had been hoarse for some years, and had attacks of asphyxia. The laryngoscope showed a tumour the size of a cherry, broad-based and situated between the arytenoid cartilages. Extirpation was effected by the galvano-cautery.

Michael.

Hopkins, F. E. (New York).—*A Case of Foreign Body impacted in the Larynx.* New York Acad. Med. "Boston Med. and Surg. Journ.," Oct. 26, 1893.

PATIENT, a male, aged twenty-seven, drew into his larynx a piece of bone whilst eating soup. Spasm of the larynx followed, and a medical man failed to relieve the patient, but passed a probang several times. Five days later he consulted Mr. Hopkins, complaining of pain, shortness of breath, cough, and hoarseness. Pain was especially on the right side. On examination:—Whole larynx congested, left ventricular band red and swollen, concealing the vocal cord; an ivory white body was seen upon the anterior half of the right vocal cord, extending during inspiration over the middle line. The left ventricular band was ulcerated by rubbing against the bone. The removal by a bent probe was tried, but failed, so for some time did the attempted removal by Mackenzie's forceps. After however, exerting a strain of five pounds, and directing the patient to cough, the bone was ejected. It was a pointed wedge, a quarter of an inch thick, half an inch wide, and eleven-sixteenths of an inch long. It had been buried in the right false ventricular band. It was seven days before the two cords were healed and the voice fully restored.

Dr. C. H. Knight alluded to a case shown by him in 1889, in which the voice was permanently altered in pitch after the impaction of a foreign body for sixteen days. *R. Lake.*

Lichtwitz (Bordeaux).—*Instruments for Operation upon Laryngeal Neoplasms of Children by the Method of Intubation with Fenestrated Tubes.* "Deutsche Med. Woch.," 1893, No. 43.

THE author operates upon neoplasms in children after the introduction of an O'Dwyer tube (*see* the report in this Journal). For this purpose he applies two instruments to the tube, a cutting spoon or a cutting crown. Both instruments are fixed on Stoerk's handle. *Michael.*

Birkett.—*Case of Subcondal Sarcoma removed by Thyrotomy.* "Canadian Practitioner," Oct., 1893.

THE patient, a pregnant woman, suffered with dyspnœa, hoarseness, and then almost complete aphonia. Laryngoscopic examination showed a subglottic tumour, dark red in colour, nearly filling the larynx; vocal cords free. Tracheotomy was performed; labour induced: the growth diminishing in size. Three weeks later thyrotomy was done, and the tumour was removed. It sprang from the right side just below the vocal cord; its base was touched with chromic acid. The wound was closed and recovery followed. The growth was a spindle-celled sarcoma. *R. Lake.*

Gluck.—*Extirpation of half of the Larynx.* Berliner Med. Gesellschaft Meeting, Nov. 8, 1893.

THE author showed a patient, sixty-eight years old, on whom he had performed this operation five and a quarter years before. In place of the extirpated left vocal band a membrane had been formed substituting the vocal band. The voice is satisfactory. No recurrence up to the present. *Michael.*

Pinaczek (Krakau).—*Appendix to the Paper on Laryngo-Fissure.* "Zeit. für Chirurgie," Band 37, Heft 1 and 2. (*See* the report in this Journal.)

Appendix to case 34.—The patient, already twice operated upon, had to be operated upon a third time, but up to now without relief.

Appendix to case 40.—Laryngo-fissure was performed a third time with cure. Closure of the fistula by plastic operation.

Appendix to case 42.—Second laryngo-fissure; extirpation of the cicatrices. The patient is up to now not completely cured.

Appendix to case 43.—Second laryngo-fissure; at present removal of the canula is impossible.

Appendix to case 44.—A patient, thirty years old, had tubercular ulcers in the larynx. They were enucleated. Some months later stenosis of the larynx occurred. Tracheotomy, followed by laryngo-fissure and enucleation, was without effect.

Appendix to case 45.—Third laryngo-fissure was necessary on account of scleroma. The canula could be removed, but the patient is aphonic.

Appendix to case 46.—Chorditis inferior hypertrophica. Tracheotomy followed by laryngotomy and enucleation of the hypertrophic masses. Removal of the canula. Aphonia.

Appendix to case 47.—Laryngo-fissure in a child five years old, who had a piece of bone impacted in the trachea. Removal of the foreign body. Cure.

Appendix to cases 48, 49, and 50.—Cases of chondritis inferior hypertrophica. Tracheotomy, laryngotomy. Removal of the canula.

Appendix to case 51.—A patient, forty years old, tracheotomized on account of perichondritis resulting from typhoid. The canula could not be removed. Laryngo-fissure and removal of a hypertrophic portion of the mucous membrane was followed by cure. *Michael.*

THYROID GLAND, NECK, &c.

Dupuis, Thomas R.—*Goitre.* "Transactions, Canadian Medical Association," Sept. 21, 1892.

IN this communication the subject of goitre is pretty fully discussed. The relative values of the different methods of treatment are considered at some length. The author pronounces against extirpation. Electrolysis as a means of cure is not mentioned. Nothing new. *George W. Major.*

Troje.—*Morbus Basedowii (Graves' Disease).* Schlesische Gesellschaft für Vaterländische Cultur in Breslau, Meeting, June 2, 1893.

THE author showed a case of this disease cured by the extirpation of the goitre. *Michael.*

Dickson, Charles R. (Toronto).—*Electrolysis in Goitre.* "Canadian Practitioner," Aug. 16, 1892.

IN an article on "Electrolysis in Practice" Dr. Dickson, electrotherapist to the Toronto General Hospital, gives some directions as to the use of electricity in goitres. In goitre the oblong electrode is positive, and is placed behind the shoulders. At the site of puncture a hypodermic injection of a mixture of five per cent. cocaine and six per cent. antipyrin in distilled water is made. The growth is then steadied by the left hand, and the patient directed to swallow several times to aid in mapping out the boundaries. A steel needle negative, insulated to within a couple of inches, or less, of its tip, is introduced through the isthmus into the lobe which is most enlarged, and the current turned slowly on. He starts with ten milliamperes for ten minutes, and at later sittings may go up to fifty or more. Subsequent punctures may, as a rule, be made through the first opening, the needle being thrust into different parts of the lobe. Once a week is considered sufficiently often for each sitting. The wound may be dressed with iodoform and boracic acid.

Cystic goitres are the most amenable to treatment. An aspirating needle, insulated to within an inch of its tip, is used to evacuate the contents of the cyst, which is then injected to distension with a solution of chloride of sodium; connect the needle with the negative wire, and use

a current of about thirty milliamperes for fifteen or twenty minutes ; turn off the current, empty the sac, and apply a dressing as before. Two or three *séances* will sometimes effect a cure.

George W. Major.

Greenfield (Edinburgh).—*Some Diseases of the Thyroid Gland*. "Brit. Med. Journ.," Dec. 9, 1893.

IN this highly original article evidence is brought forward, of a character sufficiently convincing, which must alter radically our ideas of exophthalmic goitre. Hitherto thought an evidence of some grave disturbance of the nervous system, we are asked rather to look upon the symptoms as produced by disordered or increased thyroid function, while structurally the disease is presented as not due to excessive vascular change, but rather as due to hyperplasia of the gland structure—a proliferation of the gland tissue unlike that seen in other goitres, and resembling a proliferation for the performance of increased function. To support the reasoning it is remarked that partial or entire removal of the gland cures the symptoms, and that any changes noticed in the nervous system are such as might be expected in toxic diseases. The contrast in many of the leading conditions between Graves' disease and myxœdema is also noted, as well as the resemblance in some respects of the phenomena of Graves' disease with those produced by artificial introduction of thyroid secretion. The author aptly compares the condition of the gland in Graves' disease to that of the mammary gland during lactation. The more striking changes in the thyroid are two : (1) alteration of the epithelium from a cubical to a columnar type, associated with great proliferation of the same ; and (2) the production of an enormous number of newly-formed tubular spaces, lined by a single layer of cubical epithelium. Associated with these changes there is no increase in vascularity. The above is but a meagre reference to a highly original paper, which requires to be read *in extenso* in order that its full significance may be realized. It is curious to observe that surgeons who have had much to do with excising thyroids have been gradually drawn to the opinion that the symptom complex—Graves' disease—is the result of some irritant poison generated in the thyroid.

Wm. Robertson.

Mosler.—*Myxœdema*. Greifswalder Medicinischer Verein, Meeting, June 3, 1893.

THE author showed a case of this disease following influenza. *Michael*.

Wiehmann (Brunswick).—*Treatment of Myxœdema*. "Deutsche Med. Woch.," 1893, No. 43.

THE author reports that his two patients with myxœdema (see the report in this Journal) are now cured by the use of fresh thyroid glands and tabloids of compressed thyroid gland extract (Burroughs, Wellcome and Co.).

Michael.

Vermeiren (Copenhagen).—*The Effect of Treatment with Thyroid Glands on Healthy Individuals and Patients with Myxœdema*. "Deutsche Med. Woch.," 1893, No. 43.

THE author concludes : In young healthy individuals only in two or three cases was diuresis influenced. In senile individuals a reaction was always

observed, consisting in increased discharge of nitrogenous substances. In persons affected with myxœdema, both in young and old individuals, an increase of nitrogenous secretion was observed. *Michael.*

Poulsen (Copenhagen).—*Abscesses of the Neck.* “*Deutsche Zeit. für Chirurgie,*” Band 37, Heft 1 and 2.

ONLY of surgical interest.

Michael.

Allbutt, T. Clifford (Cambridge).—*Discussion on the Treatment of Enlarged Cervical Glands.* “*Brit. Med. Journ.,*” Nov. 25, 1893.

THIS discussion, introduced by Dr. T. Clifford Allbutt, was supported by Messrs. Pridgin, Teale, Knight Treves, Godlee, Howard Marsh, Ashley, Cummins, Thomas, Milburn, Noble Smith, D’Arcy Power, Black (Newcastle-on-Tyne), and Barlow.

Dr. Allbutt referred to the adenitis always in this case secondary, and as due to peripheral irritation, for the most part arising in the mucous membranes of the mouth, throat, nose, or ear, only occasionally in the skin. The enlargement of the submaxillary gland and cervical glands is bubonic, and finds a parallel in the enlargement of such glands in the mesentery, consequent upon irritation of the intestinal mucous membrane. The glandular hyperplasia may be seen in every degree from increased functional activity to excessive hyperplasia and necrosis. The susceptibility of the adenoid tissues varies with the seat of the primary infection—with its nature, with the age of the patient, and probably with individual disposition. The richer the part in adenoid tissue, the more readily the enlargement occurs. The nature of the irritant is to be considered. Tubercle acts rapidly and severely; syphilis slowly, still severely; the milder toxins rapidly, but not severely. These all act in the same way—first, in a heightened physiological activity, and then, if it persists, in loss of physiological balance, resulting in changes which we call pathological. The author inclines to the view that scrofulous neck is always due to the entrance of a pathogenic microbe, generally by way of the tonsil. [Here we are on debatable ground. The far greater facility of entrance offered by adenoid vegetations in the pharyngeal vault to pathogenic microbes than per the tonsils is confirmed by clinical observation. Very rarely indeed is a case of enlarged cervical glands to be found where, at the same time, adenoids are not present.—REP.] The author refers to the several grades of hyperplasia—that of the smaller masses is of no consequence, while that of the larger masses may, through improved vitality, be recovered from. When the hyperplasia passes beyond physiological limits, necrosis results, which, in the presence of debility, may terminate in serious constitutional injury and ugly local results. When indirect measures fail, direct measures by surgery are called for—not that by galvano-cautery applied to visible swellings, but by the more radical method indicated by Mr. Teale in 1881. The guiding principle referred to by Mr. Teale in the treatment of scrofulous neck is that whenever septic material is contained in the system we rest not until it is expelled, and its burrows are laid open and disinfected. In doing so the smallest amount of blemish must be aimed at. In dealing

with pus near the surface and subcutaneous diseased glands, stitches and drainage tubes are dispensed with. All sinuses and suppurating cavities are to be cleansed by means of scraper and lint, and drainage maintained until deep parts are healed. The visible abscess is often a subcutaneous reservoir of pus, the source of which (a degenerate gland) is not subcutaneous, but sub-fascial or sub-muscular. Mere incision of an abscess in the neck, without further search for eradication of diseased gland structure, the cause of the abscess, is to be condemned. As soon as it has been determined that the enlargement of a gland is no longer temporary but permanent, these means for its removal ought to be undertaken at once, in preference to waiting for softening. In Teale's experience, in the majority of instances of scrofulous neck there was no indication of constitutional weakness or taint. The origin of the ailment was often clear and defined—bad drains in many instances, scarlet fever, mumps, etc.—health in the individual being restored after the elimination of the septic matter.

Mr. Teale concludes by remarking that it is possible to get to the root of the trouble by one or two operations, and that in most instances disease of the cervical glands is a local disease, and curable by local measures. Mr. Knight Treves holds that time for nature to arrest the progress of the disease should be given, after which the operation should be done, when tearing or lacerating the gland is to be avoided. No drainage tubes are used, the wound closed, and pressure externally applied. Ugly scars are due to diseased tissue left at the operation. Mr. Godlee would operate when it was clear that disease had not gone beyond the limits which the knife could reach. Howard Marsh condemned the removal of glands in their early stage of disease. He thought a free incision desirable. Inflammatory products ought to be removed. A careful dissection was better than scraping. Cummins noted a case of acute phthisis, following removal of glands. He recommended early incision. Milburn inclined to think that the disease was not purely local, nor always the result of local irritation. Barlow referred to the uselessness of drug treatment in this condition. The result arising from peripheral irritation, he thought it advisable to improve the peripheral mucous membrane by removing hypertrophied tonsils, ablating disease in the naso-pharynx, and instituting hygiene of mouth, gums, &c. By removing these the glands often subsided (a point long ago insisted on by the reporter).

Dr. Barlow objected to the use of the scraper, as by it tubercular absorption might take place.

Wm. Robertson.

E A R S .

Daae, Hans (Christiania).—*A Contribution to the Anthropology of the Ear in Criminals.* "Arch. of Otol.," Oct., 1893.

MEASUREMENTS were made on the ears of convicts in the prison at Christiania. Daae found the length, breadth, and base of the ear

increasing with age. Darwin's tubercle comes nearer the base line in advancing years—due, not improbably, to a shrinking of the helix margin. Other results are given, which the writer considers, on the whole, in accord with those obtained in normal persons, and he arrives at the conclusion that there is no type which may be considered the “criminal ear.”

Dundas Grant.

Bezold, F. (Munich).—*A Case of Removal of the Stapes.* “Arch. of Otol.,” Oct., 1893.

SURPRISED at the remarkable results of stapedectomy reported by others, and notably by Jack, Prof. Bezold determined to try the effect of the operation on a case under his care, in which dulness of hearing and constant tinnitus had resulted from adhesions following chronic suppurative otitis. The operation was performed without any particular difficulty under cocaine. There was persistent giddiness for three days, and then tinnitus. Whisper previously heard at two centimètres was not heard at all. The lower tone limit rose from sixty-four to one hundred and ten vibrations per second. Ten weeks later, conversation previously heard at twenty centimètres was only heard at three. He has heard from Blake that in his two cases there was no permanent improvement, and from Ludewig that deafness resulted in six cases of unintentional extraction of the stapes. [Prof. Bezold's experience is most welcome in view of the rosy accounts we have had before.—Ed.]

Dundas Grant.

Blake, Clarence J. (New York).—*Removal of the Stapes.* “Arch. of Otol.,” Oct., 1893.

A TABULAR statement of twenty-two cases of stapes operation for deafness or tinnitus, due to chronic non-suppurative adhesive catarrh, with comments, seems to justify amply the writer's conclusion that in such cases stapedectomy does not afford a promising outlook. The patients were, in almost every case, no better—in several, worse—than before. In the cases resulting from suppurative disease operation is less hopeless. In all the non-suppurative cases he advises a preliminary incision of the membrane under local—not general—anaesthesia, and of sufficient extent to serve for the completion of the operation, if tests for hearing and further exploration afford encouragement to perform such operations as synchotomy, tenotomy, incudectomy, incudo-stapedectomy, or stapedectomy. [In all his cases bone conduction seems to have been impaired before operation. We should consider this an almost absolute contra-indication. The publication of these discouraging details does great credit to Dr. Blake's scientific and professional frankness.—Ed.]

Dundas Grant.

Sheppard, J. E.—*Removal of the Ossicles.* “Arch. of Ophthal. and Otol.,” Oct., 1893.

SEVENTEEN cases, with the object of curing suppuration, and two in adhesive inflammation, after suppuration, to improve hearing. In the first three suppuration was in the attic, two were permanently cured, and the third was healing; the malleus and incus were removed in two, and

the malleus only in the third, as no incus could be found. In the next three Stacke's operation was done, the larger ossicles being removed as part of the operation; two were healed, one healing. The next was tubercular, and the two larger ossicles and membrane were removed; cured. Next two were the mallei from one patient—result, not cured. The next, all three ossicles removed, marked improvement; (11) malleus, no incus found, not cured; (12) all three ossicles, marked improvement; (13) malleus only, others not found, temporary facial paralysis eight days, after operation, cured; (14) malleus removed, both incuses exfoliated, tubercular patient, not cured; (15) ossicles removed, cured; (16) malleus removed, incus absent, dizziness and vomiting followed, cured; (17) malleus and incus removed, cured; (18) malleus and incus removed, cured; (19) malleus and stapes, incus absent, cured.

The second series consist of twelve cases of chronic non-suppurative catarrh. The first two were removals of malleus only, one derived no benefit, the other slight, but also got slight vertigo; in four more the malleus, incus, and head and crura of stapes were removed—two negative results, one great benefit, and one slight benefit; one of these developed transient facial paralysis twelve hours after the operation. In three cases incus and crura of stapes—one better, one negative, one worse; bad vertigo in one, slight in another, and autophonia in the other. Incus and stapes two sides of one patient, great benefit. Cocaine was frequently the anæsthetic used. The removal of the footplate of the stapes seems not absolutely necessary in all cases. Eight out of the thirty-one had unpleasant symptoms, viz., four severe and prolonged vertigo, two vomiting, two facial paralysis, two meningeal irritation.

R. Lake.

Holmes, C. R. (Cincinnati).—*The Stacke Operation for Caries, involving the Middle Ear, as modified and practised by Prof. Hermann Schwartze; with an Historical Sketch, Method of Operating, and Report of Twelve Consecutive Cases.* "Arch. of Otol.," Oct., 1893.

IN Schwartze's "classical" operation the opening was made in the outer surface of the mastoid only. Stacke, after separating the auricle and membrano-cartilaginous meatus, worked from the posterior wall of the osseous meatus into the antrum and attic. Schwartze's modification consists in first opening the antrum from the outer surface of the mastoid process, and then cutting away the wedge of bone between the external meatus and antrum.

In the introduction are given Schwartze's indications for opening the antrum. These are well known, but his indications for removal of ossicles are less familiar, and are as follows:—(a) To induce cessation of suppuration without regard to hearing-power, (1) in caries of hammer and anvil; (2) in chronic purulent discharge in the tympanic cavity without signs of caries of the hammer and anvil; (3) in cholesteatoma of the tympanic cavity. (b) For the improvement of hearing and the cure of subjective noises, (1) when there is fixation of the hammer, but ability to hear the voice, and improvement on trial incision of the membrane; (2) in incurable obstruction of the Eustachian tube and improvement on incision; (3) in sclerosis of the tympanic cavity, with temporary improvement on cathe-

terization and on trial incision. The last two indications are recommended with considerable reservation. The familiar steps of the operation are fully described. Holmes advises that all measurements should be made from the *spina supra meatum*. They are then pretty constantly as follows:—To the facial nerve, fifteen millimètres; to the horizontal semi-circular canal, sixteen millimètres; to the posterior, eighteen millimètres; to the footplate of the stapes, twenty-two millimètres; to the end of the short process of the incus, sixteen millimètres. A safe guide to the extreme distance we may penetrate is *the distance from the spina to the posterior superior margin of the membrana tympani*, which in health fluctuates but little from fifteen millimètres. All diseased tissue should be removed, even if the dura or lateral sinus be exposed in the process. The possible thinness and even dehiscence of the bony walls of the tympanum in relation to the internal carotid artery, vestibule and cranial cavity must be kept in mind. The wound is sometimes kept open, sometimes closed, and the plugging and dressing entirely carried on through the meatus. Twelve cases, illustrative of simple and complicated conditions, are appended.

Dundas Grant.

Vulpus, W. (New York).—*A Peculiar Case of so-called Bezold's Mastoiditis.* "Arch. of Otol.," Oct., 1893.

AN acute case of middle-ear disease in a woman aged twenty-eight, in which repeated paracentesis failed to cure, and the mastoid was opened by operation. A probe in the mastoid reached down to a hole on the inner surface of the tip, through which a quantity of pus could be squeezed up from an abscess cavity in the side of the neck. This was scraped out and drained through a counter opening made at its lowest point. Excellent recovery soon followed. He thinks that extension to the mastoid is caused in some cases by abnormal thickening and resistance of the membrane to the escape of pus, and that it may then be prevented by free paracentesis, practised preferably by means of the galvano-cautery. He recommends a narrow and short platinum wire loop, doubled on itself to form a shallow hook, attached to slender varnished copper or silver shanks. Cocaine affords a sufficient anæsthesia for this paracentesis.

Dundas Grant.

Vickery (Newcastle-on-Tyne). — *Septic Thrombosis of the Lateral Sinus; Recovery.* "Brit. Med. Journ.," Nov. 25, 1893.

THE record given by the author forms an interesting study. The case was that of a boy, aged eight, who had suffered from ear discharges at intervals. When seen there was high fever, tenderness and swelling behind the right jaw and in front of the tragus, pain in the neck and stiffness. There was no mastoid swelling or redness. With these data in view, it was supposed that the sinus was involved, and from the fact of the swelling under the tip of the mastoid that the jugular was involved. The jugular was exposed (no thrombosis) and tied, when, the upper part of the vein collapsing, it was presumed that thrombosis existed above. The sinus was now exposed. On opening it there was the usual free rush of blood, which was controlled in the usual way. The mastoid antrum

was not opened, nor was the condition of the middle ear referred to [Comment on this case is embarrassing. It is high time that the general surgeon should become acquainted with the symptoms diagnostic of Bezold's variety of mastoiditis, especially with that one symptom, viz., swelling of the tissues beneath the tip of the mastoid process, and extending down the neck.—REP.]

Wm. Robertson.

Vulpus, W. (New York).—*An Unusual Case of Bilateral Fracture of the Temporal Bone.* "Arch. of Otol.," Oct., 1893.

AFTER a severe fall on the head, resulting in hæmorrhage and temporary unconsciousness, there was found three months later, on complaint of tinnitus and giddiness, extreme deafness of the right ear both for air and bone conduction, facial paralysis, and loss of taste in the anterior part of the right side of the tongue. The membrana tympani was relatively normal. On the left side, however, there was a clot in the meatus and evidence of injury to the membrane, but comparatively good hearing, and no evidence of nerve-deafness. The rupture of membrane seemed to have acted as a safety-valve as regards the labyrinth on the left side.

Dundas Grant.

Dercum, F. K. (Philadelphia).—*Optic Neuritis, Blindness, Deafness, and Knee Jerk in Cerebellar Disease.* American Rhinological Association. "Boston Med. and Surg. Journ.," Oct. 26, 1893.

AFTER discussing blindness, Dr. Dercum referred to deafness in certain cases of cerebellar tumour. The studies of Spitzka, Manakow, and others, have made it extremely probable that the posterior quadrigeminal bodies stand in the same relation to the auditory fibres as do the anterior to the optic fibres. It would simply be necessary, therefore, to have pressure on these bodies to account for a deafness in such a case.

R. Lake.

Urbantschitsch (Vienna).—*On Reciprocal Interaction of the Two Ears.* "Archiv für Ohrenheilk.," July, 1893, Band 35, Heft 1 and 2.

ABNORMAL conditions of one ear have an injurious effect on the other one, which may be of a similar or dissimilar character. These may be classified and subdivided as follows:—

A. Similar—(i.) vaso-motor; (ii.) trophic; (iii.) sensory; (iv.) functional: (a) Sensorial; (b) accommodative.

The similar effects may differ in being (1) analogous, (2) alternating, (3) contrary.

B. Dissimilar—in particular the influence on the hearing of one ear, of disturbance of the sensory nerves of the other.

A. SIMILAR—(i.) *Vaso-motor* changes are illustrated by section or stimulation of the sympathetic on one side affecting secondarily the opposite ear, and (ii.) *trophic* changes similarly when the fifth nerve is experimented on. Clinically, localized inflammation in one meatus has been observed to be followed by a similarly situated affection in the other, as also inflammation "alternately" in one and the other ear. Before attributing them to reflex nervous causes the possibility of

physical transference of irritating material, its transmission by lymphatic channels, etc., and simple community of cause, must be eliminated. (iii.) *Sensory* disturbances—otalgia, circumscribed inflammation—in one ear may determine in the other one painful, hyperæsthetic or hypæsthetic phenomena at the corresponding point. A case is narrated in which the secondary pain in the sound ear was removed by local treatment—removal of malleus—of the affected one. (iv.) *Functional* changes are illustrated by a case of spontaneous “transference” in a non-hysterical subject, and also by Gellé’s experiments with magnets in hysterical patients with unilateral deafness. Acuteness of hearing in one ear may diminish, while that in the other increases, and *vice versa*, these periods of inverse changes lasting for hours or days. Similar variations have been observed in subjective tinnitus aurium, the phenomenon passing suddenly from one ear to the other without apparent cause. By experimental comparison of monaural and binaural hearing it was shown that less intensity of sound was necessary for perception in the latter, and this is explained by the doubling of the acoustic stimulus rather than by transmission of waves from one ear to the other. Perception by means of the better ear is, therefore, increased by the assistance of the worse one, even for sounds which are inaudible to the latter. Stoppage of one ear diminishes the acuity of the other, and the removal of an obstruction increases it, as shown by the effect of syringing away a ceruminous plug. Auditory stimulation of one ear rouses the opposite one and exercises it in the same way as cultivation of the sense of locality or of muscular power on one side of the body produces improvement on the other. Similarly judicious operative interference on one ear benefits the other one, even though the hearing of the ear operated on is not improved (*e.g.*, removal of ossicles). As these effects follow in cases in which the stapes is isolated and unaffected by any nervous muscular mechanism, Urbantschitsch considers that they are dependent on stimulation of the centre rather than on any accommodative synergy. In very many cases, however, he ascribes the effects to accommodative rather than sensory causes, and quotes Gellé and Pollak. Both modes of action often combine to produce the improvement.

B. DISSIMILAR—Interchanges between the two organs of hearing, in particular the influence of sensory irritation of one ear on the functions of the other, are exemplified by diminution of tinnitus in a very deaf ear on catheterization of the opposite Eustachian tube, or blistering or rubbing of the opposite auricle. Unfortunately, the reverse effect has also ensued. It is questionable whether such inter-action should be called dissimilar, as it may be due to accommodation.

The practical outcome is the necessity of treating vigorously by operative or other measures an ear which is not in itself susceptible of restoration of useful hearing-power with a view to improving the condition of the opposite one, as in cases of sclerotic progressive deafness.

Dundas Grant.

ASSOCIATION MEETINGS.

THE BRITISH LARYNGOLOGICAL AND RHINOLOGICAL ASSOCIATION.

The First General Meeting of the Sixth Session was held on Friday, December 8th, 1893, at the Rooms of the Medical Society of London.

The President, Dr. JOHN MACINTYRE (Glasgow), was in the Chair.

The Minutes of the last Meeting having been read and confirmed, the following gentlemen were elected Fellows of the Association :—

Dr. ALEXANDER ST. GEORGE REID.
Dr. HAROLD MUIR EVANS.
Dr. CECIL NEIL GRIFFITHS.
Dr. E. B. WAGGETT.
Dr. P. HENDERSON ABERCROMBIE.
Dr. J. ORLANDO ORR.

Cases of Necrosing Ethmoiditis.

Dr. WOAKES showed four patients suffering from necrosing ethmoiditis.

Mr. WYATT WINGRAVE stated that he had been interested in seeing these cases, and testified that in three of them there was distinct evidence of bare bone, which might be or might not be necrotic.

Dr. W. MCNEILL WHISTLER showed a case of *Chronic Laryngeal Disease of Eighteen Years' Duration*.

The patient, who is now fifty-six years old, came to Dr. Whistler's clinic at the London Throat Hospital in April, 1887, complaining of intense lancinating pain—intermittent in character, though frequently recurring—in the “lower part of his throat,” as he described it, and confined to the left side. In addition to these spasmodic attacks there had been for several weeks a constant soreness in the laryngeal region. There was also pain in swallowing, with occasional slight choking fits when taking food. There was no œsophageal stricture.

Local signs.—In the pharynx there was nothing to be noted beyond slight surface congestion. Laryngoscopic examination showed a very marked redness, with swelling on the under surface of the epiglottis, extending from the left side of the epiglottic cushion to the left ary-epiglottic fold and upper portion of the left ventricular band. The hyperæmia and the swelling were strikingly confined to the left of the median line. There was some swelling over the left arytenoid, but no impaired movement of the crico-arytenoid articulation. There was no growth or ulceration. Just above the left upper border of the ala of the thyroid cartilage there was a limited area of thickening, appreciable on palpation, but not forming any very prominent swelling. The man was

suffering from sciatica at the same time, with great pain in the leg and lameness.

With the exception of occasional rheumatic attacks, he said he had always enjoyed good health, and he looked a healthy and strong man.

There was no history of syphilis, or any evidence of pulmonary disease. He had served for many years as a policeman. He had never had any blow or other injury to the neck. He was first attacked with neuralgic pain in the throat in 1875. The seizure was sudden, and so severe that he had to be relieved from duty. He had never before suffered from any throat trouble. Under treatment this attack passed off quickly, and from that time he remained well until 1881, when he went to the Golden Square Throat Hospital with a relapse of the original symptoms.

Under treatment by sedative inhalations and local applications to the larynx he again obtained complete relief, which lasted until 1886, when he returned to that hospital. Judging by the patient's statement, the local signs and the symptoms appear to have then been very similar to those noted by Dr. Whistler subsequently, but the man stated that the external swelling in the sub-hyoid region was at that time larger. He said that this was punctured, and the laryngeal swelling was lanced, but with a negative result, no evidence of suppuration being obtained.

Dr. Whistler saw the patient during an attack which came on while he was being examined at his first attendance, and also on other occasions. They always were of very abrupt onset, and of short duration. The symptoms were those of acute cramp, accompanied by intense pain, radiating from the tongue to the lower part of the pharynx, the larynx, and to the hyoid region. During the seizure the patient could not speak, as any movement of the tongue increased the pain. When speech was regained the voice was hoarse; but there never was any dyspnoea. The laryngeal signs could scarcely account for the severity of the symptoms. Dr. Whistler said that he had some time before this seen very similar symptoms in a gentleman who was a great sufferer from gout. In that case the pain affected more especially the root of the tongue, every movement of which organ was most agonizing to him. The seizure was equally abrupt, and could not be accounted for by any local signs. The larynx was not implicated. The symptoms quickly yielded to alkalies, iodide of potassium, etc.

Arguing from this, and taking into consideration the markedly rheumatic diathesis of the present patient, Dr. Whistler was led to infer that both cases were of kindred nature, and that the inflammatory signs in the larynx were due to rheumatic or gouty perichondritis. He was put upon the treatment just mentioned, which gave him immediate relief. He subsequently took effervescent salicylate of lithia, and was soon free from all pain and spasm. It was interesting to note that the sciatica and the throat symptoms yielded simultaneously to this treatment. The patient remained under observation for several months. The redness and swelling in the larynx persisted for some time, but with local applications, added to the general treatment, there was very little trace of these remaining when he ceased attending.

He came once more in the spring of 1893. The character of this further relapse was the same as the previous attacks, and the laryngoscopic appearances were identical with those already described. The pain, however, was more persistent, and his general condition was decidedly worse. The patient had for some time been losing weight, and was much weaker. About midsummer he had (according to his statement, for he was never seen by Dr. Whistler during one of the attacks he then described) some seizures, seemingly of an epileptiform nature, simulating those of "petit mal"; the painful spasm over the area already described culminated in a species of aura, with vertigo and loss of consciousness of his surroundings, from which, after a few minutes, he recovered. He had never had any convulsion, and it was an open question whether these attacks were not really due to syncope, induced by pain. They were relieved by bromide of potassium, but this might result from its controlling the localized cramp. They only occurred a few times, and have not recurred. From the middle of August Dr. Whistler had not seen this case until the beginning of November. During this period much more extended signs of infiltration had developed in the larynx. There is now a diffuse growth, involving the under-surface of the epiglottis and ary-epiglottic fold on the left side. The movements of the cords are not impaired, and they are normal in appearance. The left one is hidden partially in front by the overlying ventricular band, excepting during phonation. The epiglottis is depressed by the rigidity of the hypertrophied ary-epiglottic fold. The surface over this region is roughened, but there is no separate and distinct outgrowth, and no ulceration. The patient, for some weeks now, has not complained of pain, and is fairly comfortable. In the left sub-hyoid region there is a distinct and very prominent swelling. There is no sense of fluctuation in it. It is apparently a glandular enlargement. Dr. Whistler thought that this more recent laryngeal growth appeared to be malignant. He brought the case before the meeting, hoping to get some expression of opinion upon it.

Mr. LENNOX BROWNE related a case of *Paroxysmal Sneezing*.

On August 11th, 1893, I was consulted by Mrs. X., aged twenty-nine years. She had been married for seven years, with a family of three children, the youngest being four years old. Her family and personal history were good, both mother and father being alive and well; and her only sister, who is younger than herself, being married and in good health. When a child the patient suffered from "weak eyes" and "red eyelids," but she had not been subject to either sore throat or other form of respiratory trouble.

The present illness dated four years ago (March, 1889), and was manifested during her third pregnancy in the shape of paroxysms of sneezing, which occurred twice or thrice a day, the patient sneezing a dozen or more times at each attack. These were most frequent in the early morning, and were accompanied by coryza. They continued to increase in severity, and on the birth of her child did not subside for more than a few days. They appeared to be uninfluenced by change of

weather, climate or other conditions, though perhaps damp seemed in some respects to affect the trouble for the worse. Exacerbations also occurred when at the seaside, during the menstrual period, and after sexual intercourse.

Concurrently the voice was affected, and became weak and uncertain in tone. The lady also complained that her memory had been very faulty for the last few months, and would fail her even when conversing on household matters a few minutes after an order had been given.

She suffered from what she termed "peritonitis" after her last confinement, and had been under treatment for uterine trouble, from which she had derived great benefit.

She had also been treated for her sneezing by several physicians—the first on the view that it was due to neuralgia, from which complaint she had, however, never suffered; by the second to dyspepsia, though her digestion had always been fairly good; and by a third to nervous debility, although there were no other symptoms of this condition.

Previous to her visit to me the nasal cavities had not been examined.

On August 11th the following conditions were noted :—(1) The left middle turbinal body is swollen, pale in colour, and œdematous; (2) the right one is over moist, pale, but not swollen; (3) there is moderate hypertrophy of the pharyngeal tonsil (adenoids); (4) the veins at the base of the tongue are varicose, there is some slight hypertrophy of the lingual tonsil, and the uvula is rather relaxed.

Under nitrous oxide gas the adenoid vegetations were removed, with the result that the patient was able to breathe freely through her nose, which hitherto had been only possible to a slight extent. The attacks of sneezing were at once diminished, and four days later the patient volunteered the statement that her memory was decidedly better since the operation—in fact, it was only on her third visit to me that I learned that this faculty had been at all impaired.

On August 23rd chromic acid was applied to the left swollen middle turbinal, which was previously cocainized, and on the 26th the spur on the right side of the septum was removed by a saw.

On September 2nd the patient left for Ilkley Spa, in Yorkshire. As a result of a cold taken on the journey, she sneezed slightly at early morning for three days, but was much relieved by use of the tablets for rhinitis, composed of camphor, quinine and atropin.

On September 13th the patient wrote that she had been free from paroxysms for six days, but on the appearance of the catamenia sneezing again occurred—one short attack each morning. No further recurrence was experienced, and the next menstrual period passed without relapse.

On the patient's return from Yorkshire, where she remained a month, the only symptom complained of was a certain sense of fulness, as of the presence of a foreign body in the throat, and, as the varicose veins and lingual hypertrophy were just as prominent as on her first visit, this condition was treated by the galvano-cautery on October 3rd.

After this she steadily improved, and, on seeing her on December 6th, she expressed herself as feeling better in her general health than she had done since the date of her marriage.

The clinical point of interest in this case is the relation of cause and effect between the nose and the organs of generation.

It seems pretty clear that the married state was the first exciting cause of the nasal irritation, and it is even probable, seeing how free the patient had been from throat trouble all her life previously, that the hypertrophy of the pharyngeal tonsil dated from the same epoch.

The moral is sufficiently obvious.

Physicians have, I believe, now ceased to charge throat specialists with failing to examine the patient's chest, or other distant organs. It might be to the advantage of the patient, and, at least, to their own credit, if in such cases as this the general physicians would examine into the local sources before giving a diagnosis of generalization.

Foreign Body removed from the Larynx by Thyrotomy without a Preliminary Tracheotomy.

Mr. F. MARSH (Birmingham) showed a piece of bone, irregular in shape, and measuring about seven-eighths of an inch by three-quarters of an inch, which he had removed by thyrotomy from the larynx of a man aged thirty-three, who gave the following history of his illness :—

Twelve months ago, without any apparent cause, his throat felt sore, and he noticed that his neck was somewhat swollen on either side of the larynx. At the same time a troublesome cough commenced, and his breath was short after exertion. The pain and swelling disappeared in about a month, but the other symptoms persisted. He had been under treatment most of the time for these symptoms, which were generally put down to "asthma," but he had not obtained any relief. He then came under Mr. Marsh's care at the Birmingham and Midland Ear and Throat Hospital. On laryngoscopic examination a growth was seen in the larynx below the true cords. It was somewhat ovoid in shape, and almost filled up the lumen of the larynx. In appearance it resembled a papilloma, but was whiter in colour, and the surface looked embossed rather than papilliform. Taking the size and position of the growth into consideration, thyrotomy was advised in preference to any intra-laryngeal method of operation. To this the patient consented, and the following operation was performed. Under general anæsthesia an incision was made in the middle line, extending from the upper margin of the thyroid cartilage nearly to the sternum, and the structures were divided down to the thyroid cartilage, the crico-thyroid membrane, the cricoid cartilage, and the upper rings of the trachea, in case tracheotomy should become necessary on account of troublesome hæmorrhage, or threatened asphyxia from any cause.

All bleeding points having been secured, the lower end of the operating table was raised so that any blood entering the air-passages would gravitate into the pharynx rather than into the trachea and bronchi. The crico-thyroid membrane and *lower half* of the thyroid cartilage were now divided in the middle line, and the sides of the cartilage drawn outwards with blunt hooks. A piece of bone was then seen imbedded in granulation tissue. It was easily removed with forceps, and the bleeding bases of the granulations were rubbed over with pure carbolic

acid. The upper part of the thyroid cartilage not having been divided, there was no difficulty in accurately approximating the cut edges with chromic catgut suture. The cut edges of the crico-thyroid membrane and the fascia over it were carefully sutured together with catgut sutures, and the wound was closed. At no period of the operation was there the slightest difficulty, either from dyspnoea or from blood getting into the trachea.

The patient made a good recovery, and his voice subsequently was as clear as before. When the piece of bone was shown to him he remembered that about the time of the onset of the symptoms he had, when deeply under the influence of alcohol, eaten some beefsteak, and he had no doubt that the accident occurred then, although he was unconscious of it.

The points of interest in the case were (1) the diagnosis and (2) the method of removal. The only diagnosis possible, both from the history and laryngoscopic examination, was that of a neoplasm, which was probably of a fibrous or papillomatous nature. The long history, the absence of ulceration, or implication of adjoining tissues or lymphatic glands, were all confirmatory of this view.

With regard to the method of operation, Mr. Marsh expressed the opinion that tracheotomy was not always a necessary preliminary to thyrotomy, and that in a certain group of cases this routine practice might safely and with advantage be abandoned.

In this group he would include impacted foreign bodies in the lower part of the larynx away from the immediate vicinity of the glottis, and innocent neoplasms in the same locality, which from their situation were inaccessible to, or from their size or number were not suitable for, intra-laryngeal removal.

Mr. LENNOX BROWNE recalled a specimen of sheep's bone, shown by Sir Morell Mackenzie twenty-five years ago, and removed by him from a man's throat with a history very like that of the author's case. He thought the author was very fortunate in not having been constrained to perform tracheotomy. When situated near the cords foreign bodies were very apt to be expelled with the rush of air which accompanied the making of the opening into the larynx, and so a further operation such as thyrotomy was obviated. In spite of the success in this case, he doubted whether it was wise to teach that tracheotomy preliminary to thyrotomy should be dispensed with; for as one never knew what was going to happen in these cases it was well to take all precautions to keep the windpipe clear.

Dr. WHISTLER remembered the case referred to by Mr. Browne. He related a case of his own. The patient had been to a general hospital, complaining of great irritation in the larynx, with cough and paroxysmal dyspnoea, which she ascribed to a piece of bone in the air-passages. Although no laryngoscopic examination was made, she was told that was not the case, though she affirmed that it had been there five weeks. When the patient came to him, he looked into the larynx, and saw a white thread-like line, which he took to be a fish-bone. There was great thickening of the inter-arytenoid fold at the cushion of the epiglottis, into which the foreign body dipped deeply. It would not yield to traction

with forceps, so he took her into the hospital and tried the effect of sedative applications for a time. When removed at a later date, the foreign body was found to be a piece of fish bone, one inch square, of which only one of the free edges had been presented to view in the mirror.

Sir PHILIP SMYLY mentioned a somewhat similar case which had come under his observation last winter, in which a piece of beef bone had lodged below the vocal cords for five weeks. He had done a preliminary tracheotomy, and four days later he had managed to remove it by the aid of Mackenzie's forceps, and he finally succeeded in removing, with forceps, a spiculum of mutton bone one inch square, which had been wedged in the larynx and trachea.

Mr. MARSH, in reply, said of course he did not mean to imply or to lay it down as a universal rule that preliminary tracheotomy should never be performed, but when they had to do with an impacted foreign body or innocent tumour he thought thyrotomy might be performed without having recourse thereto. The wound could be closed, and the patient would be well in a day or two. He had made a long incision, exposing the trachea, so that he could have performed tracheotomy at a moment's notice had it been necessary. The position of the patient was important—the body should be inclined, with the head down. In this case there was not the slightest difficulty from hæmorrhage. He thought the operation of thyrotomy would become more popular if it were recognized that the preliminary tracheotomy could be safely dispensed with. The diagnosis made was that of papilloma. There was nothing in the history or appearances to suggest the presence of a foreign body.

Mr. LENNOX BROWNE asked how they were to know beforehand whether or not they had to do with an innocent growth. The case reported by Dr. Whistler was very instructive on this point. On looking down the throat it was like looking into a tunnel, and one only saw the engine advancing, but could not tell how many carriages there were behind. He remembered one such case in which apparently only a small growth was in the larynx, but on division of the thyroid cartilage the whole of the left side of the larynx was seen to be one mass of malignant disease. The author said that the foreign body was covered with granulation tissue, but how could he tell that it was not a growth? In fact, that was his diagnosis. And how could he tell until it was removed whether it was innocent or malignant?

Dr. STOKER observed that the question turned upon whether or not it was desirable or necessary to perform the preliminary tracheotomy. If they performed thyrotomy and found a malignant growth, there was nothing to prevent them doing tracheotomy, but to do the tracheotomy first and the thyrotomy afterwards was to run the risk of finding that the former might easily have been dispensed with.

Mr. MAYO COLLIER agreed with Mr. Lennox Browne that on general surgical principles it was wiser to perform preliminary tracheotomy. The author had challenged them to show what were the complications that were likely to arise in thyrotomy without tracheotomy, but no one doubted that there were numerous complications and sequelæ which might

induce serious trouble after the removal of a foreign body or growth. Hæmorrhage, for example, might occur after the wound had been closed, or there might be so much inflammatory œdema after the operation that breathing might be seriously interfered with. Again, unless tracheotomy was done and the passage to the lungs blocked, the foreign body might be dislodged and fall into the trachea. Tracheotomy was after all a very simple proceeding, which ensured absolute security and comfort. If they thought they could remove the body or growth easily, then perhaps the tracheotomy might be done later or afterwards if required, but on general surgical principles it was generally desirable in impactions of foreign bodies, etc., to do tracheotomy, so securing a sure vent to the trachea and lungs, and then they had a free hand. Moreover, tracheotomy, by giving the parts physiological rest, facilitated prompt union between the opposing surfaces of the thyroid.

Mr. MARSH, further in reply, said he did not cut through the rings of the trachea, but only exposed them so as to be able to cut through them if necessary. If he had found any difficulty from the growth being more extensive than he had anticipated, then he could forthwith have performed tracheotomy.

Mr. MAYO COLLIER showed *Photographs of a Man* who exhibited an extraordinary and probably unique deformity of the face, due to *Hypertrophic Changes of the Nose and Forehead*. He remarked that the ravages of lupus and syphilis and drink combined could not have produced a greater deformity. The patient was twenty-two years of age. There was no pain in the growth, which had been increasing gradually. He had performed a plastic operation, and the growth proved to be a fibro-lipoma.

Case of Pseudo-Stricture of Œsophagus with Cancer of Liver.

Mr. MAYO COLLIER also related the case of an actor who had suffered from difficulty of swallowing for three months. His age was about fifty-three. He had never had syphilis, and had enjoyed fairly good health. He consulted various medical men, but no diagnosis was ventured on, though iodide of potassium had been given on the chance of its being syphilis, but without result. He was admitted to a general hospital, and there his case was examined, and the disease diagnosed to be malignant stricture of the œsophagus, and gastrotomy advised. As, however, the operation would have had to be performed by the surgeon's junior, the patient left the hospital and went to another, where similar advice was given. He still hesitated to undergo the operation, but finally came to the North-West London Hospital with the intention of submitting to the operation. On admission he appeared an aged, emaciated man, but this was not surprising considering that the patient had not taken any food by the œsophagus for the preceding three weeks. He could, in fact, hardly speak, so weak was he. Mr. Collier gave him some water to drink, and was struck by the fact that the attempt to swallow was quite futile. The liquid did not go down, to be returned some time after, but was rejected from the first. That made him doubtful as to the diagnosis, and he took a feeding tube and succeeded in passing it

without difficulty into the stomach after a little gentle, persistent pressure. Some egg and brandy in milk was by this means introduced into the stomach. This treatment was continued twice in the twenty-four hours for eight or nine days, and the patient somewhat improved. Then a low form of pneumonia set in, and he died. He had examined his chest in the first instance, but there was no evidence of a growth in the lungs or in the mediastina, but in the abdomen a large tumour of the liver could easily be made out, reaching low down. *Post-mortem* he had removed the pharynx, the larynx, œsophagus, and the upper portion of the stomach, but there was not the smallest sign of any portion of involvement of the coats. Death was due to a large cancer of the liver, which was the only disease present. He pointed out that the patient had been seen and examined by twelve or fifteen medical men, and the disease was diagnosed as cancer of the œsophagus. In view of the peculiar circumstances, he looked upon this as an especially interesting and instructive case; one, moreover, that ought to make them look twice before affirming the diagnosis of cancer of the œsophagus in the absence of unequivocal evidence. He had looked over the record of cases of cancer of the liver, and in four of them, at any rate, it was on record that the disease was associated with reflex stricture of the œsophagus. Mr. Treves had told him that three cases had been handed over to him for operation, in which he proved to his satisfaction that there was no disease of the œsophagus, but evident disease of the liver.

Mr. LODGE, junior, asked how the author would make the differential diagnosis between that condition and paralysis of the œsophagus.

Mr. COLLIER replied that simple paralysis of the œsophagus was a disease unknown in medicine. There was indeed glosso-labio-pharyngeal paralysis, in which the paralysis was located in the upper pharyngeal muscles, but in his case the impediment to swallowing was distinctly in the upper part of the œsophagus, the pharyngeal muscles driving the food down on the closed œsophagus, not accumulating in the cavity of the pharynx, to be afterwards expelled as in glosso-labio-pharyngeal palsy.

Dr. WHISTLER referred to the case of a lady, from Australia, who for a long time suffered from dysphagia, associated with marked wasting. She was past middle age. She came to him with the idea that it might be commencing malignant disease, but he was unable to find any evidence thereof. He, however, noticed the very symptom alluded to by the author—viz., the prompt rejection of food from the pharyngeal orifice of the œsophagus, showing that the obstruction was quite at the orifice. The dysphagia had come on at the menopause at a time when she was suffering from considerable ovarian and uterine trouble. He placed her under chloroform, and passed even the largest bougies into the stomach without difficulty. He also referred to a man, a hard drinker, with an enlarged liver and spasmodic stricture of the œsophagus. The passing of bougies was not followed by improvement of the stricture. This was cured by treating the hepatic trouble, together with rest in bed, and a milk diet.

Mr. LENNOX BROWNE pointed out that the cases associated with ovarian disorder and alcoholism did not belong to the same category as

that related by Mr. Collier. He asked the author to kindly detail, for the benefit of the Fellows, the exact anatomical explanation of the reflex.

Mr. COLLIER replied that there was a very definite and distinct anatomical explanation. When they remembered that the pneumo-gastric nerve passed down on each side of the œsophagus, gave large branches to it, and to the œsophageal plexus, and also gave large branches to the vaso-motor system of the liver, it was easy to understand that there was a distinct connection between the nervous supply to the liver and to the œsophagus. One might indeed expect that any serious disturbance in the liver would bring about a corresponding disturbance of innervation, not only in the œsophagus, but also in the pharynx. He pointed out, according to Mr. Lennox Browne's own work, affections of the pharynx and larynx were always made worse by congestion of the liver, to obviate which that author rightly recommended in post-nasal catarrh that the portal system should be carefully kept open.

Dr. GEO. STOKER showed *A Large Tumour, with Appendages, removed from the Post-Nasal Spaces and Left Nostril* of a patient whom he had shown at the last meeting of the Association, prior to operation. He explained how he had prevented hæmorrhage by passing a loop of whip-cord through the nostril, and guiding it round the pedicle by the aid of the finger introduced through the mouth. This loop was tightened by twisting. The wire of a snare was similarly adjusted, and the growth removed without any marked bleeding.

Mr. LENNOX BROWNE having asked the question "What was the result of the histological examination of the growth?" and being informed that it was a fibroma, congratulated Dr. Stoker on what appeared an unique success, for he had never heard before of so complete an enucleation at one operation, and with so little hæmorrhage. The point of attachment of the growth was very limited, and not the usual broad base which generally characterized this class of naso-pharyngeal growths. Possibly the preliminary ligature might have been of more value in preventing the hæmorrhage than was modestly claimed by Dr. Stoker.

Mr. ED. LAW doubted the possibility of effecting tightness of the ligature to a useful extent by the method employed by Mr. Stoker.

The PRESIDENT then delivered his Address, which was printed in the last number of the JOURNAL.

Sir PHILIP C. SMYLY thanked the President for his very interesting and carefully prepared address. He thought nothing could speak more strongly for the uses and advantages such an association as theirs conferred upon the profession, as a whole, than having such a President as Dr. Macintyre in the chair.

The vote of thanks was passed by acclamation.

SPECIAL DISCUSSION.

The Pathological and Clinical Features of Atrophic Rhinitis.

Mr. WYATT WINGRAVE opened the debate in the following communication:—At a recent meeting of this Association it was my privilege to demonstrate some histological investigations concerning the disease

commonly known as "atrophic rhinitis." Through the courtesy of your Council I am now enabled to amplify that communication by dealing with its clinical and pathological aspects.

The selection of a disease with whose existence we are only too familiar, perhaps, demands some justification or apology. As I cannot justify its choice by presenting you with any brilliantly novel observations or discoveries, I can simply plead the importance of the subject, and express a hope that by your discussion more light may be thrown upon a disease regarding which at present our literature reveals an apparently hopeless tangle of conflicting views and contradictory interpretations.

It is not my intention to trouble you with an exhaustive chronological or critical review of all that has been written upon the disease, but to give you the results of a personal investigation into upwards of sixty cases, many of which, through the courtesy of my colleagues, I have been able to examine systematically and watch during the last year or two. Although sixty may seem a small number, they represent a careful selection, as I have rigidly excluded all those which appeared of a doubtful nature.

Definition.—Without prejudging the appropriateness of the name, atrophic rhinitis may be defined as a progressive and persistent form of dry rhinitis, characterized by a shrinking of the mucous membrane, which tends to invade contiguous chambers, and is accompanied by the formation of crusts with more or less fœtor of a special character.

Nomenclature.—Ozaena, dry catarrh, fœtid coryza, cirrhotic rhinitis, and punaisic represent only a few of the names which are in use, and more or less indicate the nature of the disease and the ingenuity of the writer. Although they are all more or less defective and misleading, instead of busying ourselves in coining new names, we can, I think, more profitably devote our attention to a consideration of the pathological and clinical details, so that certain features may be selected as characteristics and constants of the disease. Until then it may perhaps be more expedient to provisionally retain the term "atrophic rhinitis."

Histological Features.—The difficulty of obtaining material for microscopical examination is obvious, for few cases are found in the *post-mortem* rooms of our special department. My histological examinations have, therefore, been confined to portions of tissue removed from living patients, by means of the snare, in a large proportion of the cases seen. I will briefly summarize and discuss the most prominent and constant features which were present.

They may be conveniently arranged under the following headings:—

1. Transformation of the columnar ciliated and special olfactory cells into stratified squamous epithelium.
2. Disappearance of the hyaloid basement membrane.
3. The presence of special hyaloid bodies and pigment masses.
4. Changes in the glands.
5. Changes in the lymphoid tissue and blood-vessels.
6. Changes in the bone.

All these conditions were present in degrees proportional to the intensity of the disease in every well-marked case; I shall, therefore,

consider them as the histological constants of atrophic rhinitis. Although transformation of the surface epithelium and many of the other changes may occur *separately* in various diseased states of the nasal mucous membrane, *collectively* their significance is of the utmost weight in identifying the specific nature of the process.

It has been observed by Bosworth¹ that these epithelial cells may become active inflammatory corpuscles, but I have not found any evidence to justify such an assumption.

The disappearance of the hyaloid membrane is very constant and characteristic, for in other forms of rhinitis it generally remains intact.

Perhaps the most striking and interesting feature is the presence of hyaloid bodies, which increase in number with the duration and severity of the disease. They consist of small, refractive, rounded, homogeneous masses, imbedded for the most part in the interlobular tissues of the glands and in the adjacent lymphoid tissue, but are also seen amongst the surface stratified epithelium. In the early stages they exist as small spheroidal masses about one two-thousandth of an inch in diameter, gradually increasing in size to about one eight-hundredth of an inch. At a later stage a complete change can be demonstrated—they seem to break up into minute refractile bodies, resembling spores imbedded in a transparent matrix.

In some places they are apparently encapsuled, whilst in others they are free. I have never satisfied myself of their nucleation, for whilst they readily take up rubin and orange they resist hæmatoxyline and other nuclear stains. The granular stage is well demonstrated by means of osmic acid and gentian violet.

What is their nature? Until consulting Burnett's "System of Diseases of the Ear, Nose and Throat," I was unable to find any reference to their existence. Under atrophic rhinitis, Fraenkel² describes homogeneous round and oval bodies, consisting of broken-down cells and nuclei, which he regards as the result of retrograde cell metamorphosis. These are doubtless similar to my hyaloid bodies, but I cannot agree with his interpretation, for they bear very little resemblance to broken-down cells, and I find no vestiges of nuclear particles. Stepanow³ (Moscow) has described hyaloid bodies in polypi, rhinoscleroma, and adenoid growths, which he attributes to the action of bacilli, believing that their production is a process which presents too great a propagation of bacilli.

These bodies I have also seen, but they differ entirely from those of atrophic rhinitis, being concentrically laminated, staining differently, and are similar to the laminated corpuscles which occur pathologically in thyroid growths, and normally in thymus gland as Hassell's corpuscles.

Fat globules are also described by many writers, but these bodies are not fatty, since they do not give the characteristic reaction with osmic acid, and they are insoluble in ether. They are not composed of amyloid substance (lardacein), since they give negative results with methyl violet and similar stains. They are very suggestive (in their earlier stages) of

¹ Bosworth: "Diseases of the Nose and Throat," vol. i., p. 166.

² Burnett's "System of Diseases of the Ear, Throat and Nose," vol. i., p. 675.

³ JOURNAL OF LARYNGOLOGY, vol. vi., p. 322.

myelin masses so often seen in preparations of nerve tissues after treatment with alcohol ; but their presence in such large numbers, and the subsequent granular changes, sufficiently negatives this interpretation. One feature is, however, very remarkable and suggestive—viz., their strong resemblance in staining reaction to the substance which constitutes the hyaline basement membrane everywhere underlying the surface epithelium in the normal state, but which in this disease disappears.

With regard to their parasitic nature my investigations at present do not permit a decided expression of opinion, although several friends, whose biological experience is greater than mine, have expressed themselves in favour of that view.

Pigment masses are not constant in their appearance ; they occur for the most part in irregularly-shaped clusters, sometimes enclosed in branched connective tissue cells, at others blocking the lumen of the capillaries, and distributed both superficially and deeply.

Changes in the Glands.—The gland changes vary in degree, from a simple cloudy swelling of the secretory cells, with blocking of the lumen, to a complete disorganization of the acini by ingrowth of small cell inflammatory tissue. The duct epithelium apparently resists these changes until very late, excepting in those instances in which the ducts were distended by plugs of laminated keratin masses. Most writers refer to these cell changes as being fatty in nature ; whilst confirming this in a few instances, careful examination showed that mucoid and keratinoid degenerations occurred much more frequently. The plugging of the ducts bore a strong resemblance to the comedones of sebaceous glands.

Changes in the Lymphoid Tissue and Vessels.—In every specimen the lymphoid tissue gave distinct evidence of change. In early stages the corpuscles were numerically increased, whilst in later stages they diminished in numbers but increased in size with absorption of the reticulum—in fact, presenting the appearance of granulation tissue, such as occurs in lupus, and, like it, invading other structures and undergoing subsequent sclerosis.

The capillaries, which normally present long loops reaching to the hyaline membrane, became entirely obliterated. The cavernous spaces became less distended and finally atrophied, due to diminished blood supply, induced by a general interstitial fibrosis and in some instances a process of slow endarteritis obliterans in their afferent vessels. I could not observe any decided active changes in the arterial walls ; they seemed to be undergoing a process of atrophic stenosis.

This vascular atrophy and perversion of gland function are greatly responsible for the altered secretions, but a most significant feature is the disappearance of the lymphoid tissue.

Changes in the Bones.—I have entirely failed to demonstrate any histological changes which might be considered specific. The walls of the bony cancelli in advanced cases were decidedly attenuated, even more so than what would be considered normal to the patient's age, and the osteoblasts were few and flattened. Osteoclastic absorption was well shown in early cases, but not excessively. When the disease occurs in early life it must obviously interfere with the proper growth of the turbinal

bones ; it is, therefore, not surprising to find them smaller than natural, but this diminution must not be attributed at any time to rarefying osteitis, nor must rarefying osteitis be considered necessary to atrophic rhinitis.

Too much stress has been laid upon the simple presence of osteoclasts as indicative of a particular morbid process. These periosteal and endosteal changes are simply part and parcel of a normal osteo-porosis or cancellation, a process essential to the development of these and other bones. It is only when the osteoclastic changes become excessive that they justify a morbid attribute.

Many writers explain the bone atrophy as the result of pressure from the drying crusts, like a collodion film, whilst it has been suggested by Zaufal⁴ that it is the result of a congenital defect, and has an important causal relation to the disease in question.

Considering the nature of the changes occurring in the soft tissues, it would be surprising if the bones did not give indications of a diminished blood supply ; but this atrophy presents the features of a passive rather than an active process, occasionally producing patches of bare bone.

Relation to Lupus.—Spencer Watson⁵ has advanced the view that there is a very close analogy between atrophic rhinitis and lupus non exedens, and that they may both be due to a common bacillus. That they probably possess a few features in common may be correct, but the suggestion of a common origin in a particular bacillus requires some substantiation ere it can be accepted, even admitting that lupus has a specific organism. Atrophic rhinitis, like lupus, is undoubtedly a spreading disease—it may extend to all the accessory and adjacent cavities, it may even involve the larynx—but it has never crossed the muco-cutaneous boundary. It occurs, like lupus, chiefly in patients who are the subjects of a tuberculous or strumous taint, and it tends to persist, but not to kill. In its fundamental histological features—the presence of small cell tissue of a low type—it resembles lupus and tubercle, but it does not ulcerate spontaneously ; its end is sclerosis.

Lupus has been described as an attenuated form of tuberculosis. Are we, then, to consider atrophic rhinitis an attenuated lupus ? There is certainly a sufficient resemblance between these diseases, both histologically and clinically, to justify further investigation.

Rhinoscleroma.—Rhinoscleroma, albeit an extremely rare disease in this country, having some resemblance to atrophic rhinitis in its histology, demands a short notice. Its essential feature is the presence of slowly-growing small cell tissue, containing, according to Cornill,⁶ small highly refractive hyaline bodies. It tends to spread in *all* directions, including skin, tongue and larynx, but does not ulcerate. In the hands of Frisch and Stepanow it has afforded positive results to cultivation and inoculation experiments.

Incidental Pathological Changes.—The most strikingly uniform incidental change observed was the disappearance of lymphoid structures. In fifty-six of sixty cases the faucial and pharyngeal tonsils had entirely

⁴ "Aerzte corresp. für Böhme," 1874, Nos. 23 and 24.

⁵ Spencer Watson: "Diseases of the Nose," 1887, p. 85.

⁶ "Progrès Médical," 1883, p. 857.

disappeared, whilst in the remaining four they were very small. The lingual tonsils were equally diminutive, for in all well-marked cases the pharyngo-glossus was perfectly smooth. This shrinking and disappearance of lymphoid structures is, I venture to submit, a significant feature of the disease, and has something more than a mere coincidental relation to the intra-nasal changes.

In most cases the teeth were more or less decayed.

The thyroid gland could not be distinguished by palpation in twenty-eight cases, but in two instances it was distinctly enlarged and resilient.

Whilst conjunctival complications were not observed, non-suppurative middle-ear disease occurred in eight cases. (Wyss found ear trouble in forty-seven cases out of sixty.)

In ten instances bare bone was distinctly felt on probing the anterior ethmoidal cells.

Anæmia was well marked in twenty-seven cases.

Etiology and Pathology.—However interesting the local changes may be, the origin of atrophic rhinitis must not be considered solely upon evidence afforded by them; it is perhaps expedient, therefore, that I should first put before you the question—Is the disease, *atrophic rhinitis ab initio*?

It would be tedious to quote all the different views which have been advanced in answer to this question, but so many writers of eminence have expressed themselves in such definite terms that, by way of illustration, I must draw your attention to one of the most recent articles.

In Burnett's "System" J. N. Mackenzie⁷ unhesitatingly answers this question by a negative. He considers that atrophic rhinitis "always appears as the sequel of a pre-existing catarrhal inflammation," and that the rapidity with which it sometimes passes from the hypertrophic to the atrophic form is, in all probability, proportional to the presence of some constitutional taint, such as syphilis.

Although we not infrequently may see a well-marked atrophic process at work in one nostril, coincidentally with distinct prominence of the turbinal in the other nostril, this does not necessarily imply that atrophic rhinitis is always preceded by true hypertrophic rhinitis. What we see in such a case is the early inflammatory thickening, which, here as elsewhere, is so frequently the preliminary thickening of a sclerotic process. There is a wide histological difference between this enlargement and that of cavernous or erectile hypertrophy, which John Mackenzie holds to be the constant and necessary antecedent to the atrophic changes. Most careful cross-examinations have only afforded me a preliminary history of nasal obstruction with profuse catarrh in three instances, and histologically I have entirely failed to trace the changes which Mackenzie describes as connecting degenerative cavernous dilation with the specific atrophic changes, and I cannot believe that atrophic rhinitis is the result of a badly-treated catarrh.

Of course there are other varieties of hypertrophic rhinitis, such as the mucoid, glandular, etc. But what is the usual termination of these conditions? The erectile form, if slight, usually subsides, but if severe

⁷ Burnett's "System of Diseases of the Ear, Nose, and Throat," vol. i., p. 672.

and persistent, owing to actual atrophic mucoid degeneration of the muscular walls of the spaces, it develops into what I have described as turbinal varix,⁸ and is eventually removed under the varying disguise of polypus or angio-myxoma. Should it be chiefly mucoid its localized exaggeration becomes an ordinary mucoid polypus; if glandular it becomes cystic. But I cannot understand how any ingenuity can trace any of these conditions, step by step, into the conditions which constitute atrophic rhinitis.

If this distension and subsequent sclerotic obliteration of the venous spaces is the *font et origo* of the disease, how can the presence of atrophic rhinitis be accounted for in situations where no erectile tissue is even found? The disease is not confined to the turbinal bodies, but spreads to every adjacent structure excepting the skin.

Drake and others⁹ have advanced the view that it arises as a chronic purulent inflammation of the accessory sinuses, whilst Gottstein holds that deficient development of the turbinal bodies is responsible, since it is followed by abnormal patency of the cavities.

Whilst admitting that a simply *dry* or pseudo-atrophic rhinitis may follow a catarrhal state, it must not be confused with this particular disease, and whether atrophic rhinitis is a specific disease *ab initio*, or is the result of a series of hypertrophic events, I leave for your discussion.

There can be but little doubt that constitutional influences are often important factors, although Bosworth denies any connection between this disease and tubercle or scrofula.¹⁰

In thirty-seven cases I obtained a definite family history of phthisis; one was attributed to small-pox, one to erysipelas, five were associated with acquired and inherited syphilis, whilst a large number gave a family history of suppurating glands in the neck, and personal history of persistent anæmia.

Alcoholism has been credited with a causal relation; this I cannot verify.

Whether there is or is not a special diathesis, apart from tubercle or struma, I will not venture to advance.

I will now proceed to a clinical analysis of my sixty cases.

1. *Age of the patient when first seen.*

From ages 14 to 20 years	21
" " 20 " 30 "	23
" " 30 " 40 "	8
" " 40 " 50 "	5
" " 50 " 60 "	3

It will be seen that the majority of cases presented themselves between puberty and thirty, but these figures are, however, of much less importance than the following, which show, as far as I was able to gather with most careful questioning, the *age at which the disease was first noticed*—i.e.:

⁸ JOURNAL OF LARYNGOLOGY, vol. vii., p. 177.

⁹ Burnett's "System," vol. i., p. 677.

¹⁰ "Diseases of the Nose and Throat," vol. i., p. 162.

2. *The date of commencement.*

From 1 to 5 years	2
" 7 " 9 "	4
" 12 " 15 "	28
" 15 " 30 "	19
" 30 " 53 "	7

These figures indicate the age of puberty as being most frequently either the real commencement of the disease, or at all events the period at which it was first appreciated by the patient or her friends. These figures practically correspond with Greville Macdonald's,¹¹ who gives seventeen as the average age for the appearance of the disease.

3. *Sex of patient.*—There were forty-nine females and eleven males.

4. *Sexual functions.*—In females it was the exception to find them not suffering from leucorrhœa or amenorrhœa, and in every instance the nasal phenomena were intensified at the menstrual flow. In two cases the disease was actually dated with the menopause, whilst more than half the number associated the commencement of the trouble with the establishment of the catamenia.

5. *Family history and heredity.*—As previously mentioned, I obtained a definite history of consumption in thirty-seven cases, and of abscesses in the neck in eighteen. The evidence of a constitutional taint is therefore strong, although in eighteen cases I could get none at all.

Several cases bearing unmistakable local evidence of syphilis I excluded. In eight instances there was evidence of atrophic rhinitis in other members of the family, and three volunteered the information that their mothers suffered with the same complaint.

6. *Occupation.*—The employments were so varied that I need only remark that the greater number consisted of girls belonging to the hard-working classes, and were engaged in warehouses and shops under varying degrees of unhygienic surroundings; still, several belonged to the well-to-do middle class.

7. *Fœtor.*—With regard to fœtor, whilst in fifty-eight cases it was more or less obvious to the observer, in about half that number it was appreciated by the patient. The intensity seemed to vary with the extent of the disease and the amount of crusts, but in those cases in which the accessory sinuses were involved it was always more persistent in spite of treatment. In those cases associated with bare bone I could not detect any difference in its nature. It was always worse during the menstrual flow.

With regard to its origin, I will ask your indulgence for a few remarks.

The mucous membrane of the nostrils is a transformed epidermal structure, derived originally from an involution of the buccal epiblast. Hence the surface epithelium (excepting the olfactory cells) and the glands originate in common with the epiderm and its appendages.

During atrophic rhinitis in the stratification of the surface epithelium we find a structural reversion to the primitive type, and in the gland

¹¹ "Diseases of the Nose," p. 136. 1890.

epithelium we find the establishment of a perverted function—in other words, the nasal mucous membrane becomes converted into a cutaneous structure, with a corresponding change in secretion.

Cutaneous secretions vary in odour with their source and with the individual. Compare the characteristic smell of the feet with that of the axilla and the preputial glands. Even the ear is the seat of a similar factor due to intra-tympanic accumulation of epithelial masses and secretions (cholesteatomata).

The nasal glandular secretions are, with those of the cutaneous glands, equally liable to putrefactive decomposition: they all give rise to peculiar odours, and they are all exposed to the influence of the same micro-organisms. Bromidrosis and rhinal factor have a close kinship, and it is in this kinship that I venture to suggest is to be found an explanation for the peculiar odour in atrophic rhinitis.

8. *Olfaction*.—Complete loss of smell occurred in only thirty cases; in the remainder the sense varied in degree with the extent of the disease and the locality invaded. Anosmia in most instances was gradual in its onset, but in not a few it was one of the first symptoms, parosmia often preceding it.

9. *Nature of the Crusts*.—Microscopical examination of the crusts afforded but little evidence of value. Staphylococci and an occasional diplococcus and leptothrix were the most prominent bacteria. One point, however, I was fully satisfied upon—viz., that the discharge was not pus, for pus cells were rarely present, the organized cells being epithelial squames and some multi-nucleated lymphocytes.

Bosworth persistently applies the term “muco-purulent” to the crusts. This certainly requires justification, for the elements of pus are wanting, and there is no granulation surface for its production.

Chemically they contained mucin, keratin, a small proportion of serum, albumen, and a trace of sulphur.

10. *Supra-Nasal Pain*.—From the frequency of the occurrence of pain over the bridge of the nose and at the “back of the eyes,” I am inclined to consider it an important diagnostic element, especially when observed late in the disease, and when the accessory sinuses were involved. It was present in thirty-eight cases.

11. *Disappearance of the Tonsils*.—As already mentioned, the faucial, pharyngeal, and lingual tonsils presented well-marked atrophy, a condition which (as far as I am aware) has not been recorded. This, I think, is an important point in diagnosis, and occurring with lymph atrophy in the nostrils may throw some light on the pathology of the disease. In fifty-six cases the tonsils had entirely disappeared.

12. *Thyroid Gland*.—With the exception of two cases, as far as I could judge by palpation, the thyroid showed distinct indications of atrophy. In those two exceptions it was very prominent and soft.

13. *Complexion*.—Statistics with regard to complexion, involving so many sources of error, can have but little value. Numerically the dark skins were in excess of the fair.

14. *Typical Facies*.—I observed twenty cases in which that which is usually accepted as the typical cast of features was present, viz., the tip-

tilted and open nostrils, depressed and widened bridge, with general diminutiveness of the organ.

15. *Relation to Infantile Suppurative Rhinitis.*—Bearing in mind Bosworth's assertion¹² that atrophic rhinitis is a sequel to post-nasal troubles in infancy, I carefully cross-examined every case, with the view of establishing the truth or the reverse of this view. I only found four examples in which there was a reliable history of a prolonged nasal discharge in early life. The difficulties in obtaining reliable information of this nature I know are great, consequently the evidence must be accepted with reserve; still, whenever it was practicable, I made direct inquiries of the parents themselves.

With the exception of one case of measles and one of small-pox, I was much surprised to find no association with the specific fevers, neither could I find any evidence of association with suppurative ethmoid troubles.

Diagnosis.—The diagnosis from all other varieties of dry rhinitis will depend upon the presence of the foregoing conditions *collectively*. *Separately* they may be of little value, but it is upon a due consideration of *all* these changes that differentiation is based. Apart from the classical signs, I need only emphasize the *spreading* nature of the disease and the uniform disappearance of the tonsils.

This, gentlemen, is my case for atrophic rhinitis as a specific disease. I have endeavoured by an analysis of sixty cases to verify or to disprove many of the facts upon which specialist writers have based their views. With many of the facts I wish for a much closer acquaintance. Of novelty I may have afforded you little, either in substance or interpretation, therefore I trust that by your greater experience you will filter the good from the bad, and that the many deficiencies will be supplied by your discussion, thereby affording a sounder appreciation of not the least important of our nasal diseases.

Dr. WOAKES said he had listened with great interest and instruction to the excellent paper just read. There were some points which were brought out more clearly in it than had been apparent to him previously, possibly because he had not given so much attention to the microscopy of this particular phase of the disease as he had done to the hypertrophic form of it. On the subject of the particular name accorded to this disease by the writer of the paper he would offer a mild criticism, which, inasmuch as he had been adjudged a sinner in the matter of nomenclature, he might, perhaps, be allowed to do. The term "rhinitis," as applied to any localized affection of the nose, he objected to, as if it meant anything at all it denoted an inflammation of the entire nasal organ, being derived from the Greek $\rho\acute{\iota}\nu\iota\varsigma$, a nose. "Atrophic" rhinitis, therefore, means a wasting inflammation of the nose as a whole, a description which did not apply to the disease under discussion. It was clear, even from the paper just read, that the affection was a form of inflammation of the turbinal bones, more especially those of the ethmoid, the cells of which latter bone were, besides, almost invariably implicated in it. It was therefore an "ethmoiditis," and displayed all the changes in the arteries.

¹² Bosworth's "Diseases of the Nose and Throat," vol. i., p. 162.

blood sinuses, and bone seen in other forms of ethmoidal disease, as he had described them : only the myxomatous developments were lacking, the fibroid elements from which these were derived undergoing atrophy instead. From the point of view, therefore, of securing by means of its nomenclature a definite description of the disease, he thought the term "atrophic ethmoiditis" distinctly preferable. He would abjure the term "rhinitis" altogether, as conveying no idea of the particular locality of the nasal organ affected. While these were his views, he was prepared to admit they were all a good deal mixed on the subject of the nomenclature of nasal disease, and before attempting definite conclusions it might be well to wait awhile, and let their ideas simmer down.

As regards the origin of the affection, he was disposed to agree with the author quoted in the paper (J. N. Mackenzie), who regarded it as the outcome of a pre-existing hypertrophic inflammation. He had noticed a fact which had a suggestive bearing on this question. He had occasionally been consulted respecting children on whom he had operated for post-nasal growths, several years after the operation, because they had again become affected in the nose. This was not due to a recurrence of the growths, but to a hypertrophic inflammation of the middle spongy bones, associated with stuffiness, and with profuse and slightly offensive discharge. He regarded this condition, occurring under the circumstances mentioned, as a later manifestation of the same diathetic state as had in infancy induced the growths.

Granted such a diathesis, it was not unreasonable that it should evoke later manifestations, as the child grew up. It was well known to them all that even adults neglected in themselves what they called a "chronic cold," and in their children this neglect was general. So that it might easily be that adults who presented themselves with well-developed atrophic disease had long since passed through a hypertrophic stage. He had certainly seen a number of cases, chiefly in young adults, who when first examined presented what clinically was indistinguishable from hypertrophic disease, and who, while under observation, passed into the atrophic phase. He had shown one such patient among those illustrating the presence of necrosis, which he had exhibited that afternoon. The history of this case showed that the disease commenced in childhood.

There remained the question as to what constituted the determining factor which should decide whether an inflammation of the ethmoid region of the nose should assume the hypertrophic or the atrophic phase?

When he published his first comments on the affection in 1887 (*vide* "Polypus, etc., associated with Ethmoiditis," p. 26, *et seq.*), he expressed the opinion that this determining element consisted in the possession on the part of the patient of an enthetic heredity—*i.e.*, in the atrophic or ozenoid cases. His subsequent experience tended to support this view, and one frequently saw in the teeth, eyes, and other regions confirmatory evidence to this effect.

He thought the description of the pathology of the disease given by the author unique, and its scientific value proportionately great, because it would now be possible with the microscope to accurately differentiate this disease from any other.

He doubted, however, whether this research would prove of much service, either therapeutically or clinically. They could not always scrape off pieces of mucous membrane, and treat such specimens microscopically, as, besides the special knowledge necessary, such a proceeding required considerable preparation, and the devotion to it of much time. Fortunately, the very distinctive clinical features of the disease made its diagnosis easy, apart from pathology.

Finally, he wished to insist on the great importance of recognizing the necrosis, the presence of which, in his opinion, constituted the element of persistency of the disease. He had been able to do this in every case but one which had come under his observation. He was glad to note that the writer of the paper had recognized this necrosis in considerably more than a third of his cases. The fact that it was often concealed within the ethmoid cells added, no doubt, to the difficulty of discovering it, but the necessity for doing so, with a view to its elimination, was essential to the radical cure of all ozæmoid affections of the nose.

Mr. LODGE, junior, said he was personally indebted to the author for his very admirable paper, the anticipation of which was one of the principal reasons that had led him to come from Bradford. None of them could dispute the author's histological description, because the sections were there under the microscope for all to examine and control. The histological details might, he thought, be accepted as correct. For people in his own position, however, the great difficulty was as to treatment, and he would like to have an expression of opinion from the meeting as to the best method of treatment, especially as the author had omitted to deal with this important division of his subject at the length it deserved. He had had a case during the last six months, in which he had tried everything he knew of or that he had read about, but the patient did not get any better. He had tried touching the ozænic spots with trichloroacetic acid, galvano-cautery, Gottstein's plugs, and the usual antiseptic douches. No bare bone, such as Dr. Woakes described, was found in any of his cases. It was a typical case of atrophic rhinitis. He had tried curetting because in the "Universal Medical Annual" of last year it was attributed to a microbial affection of the glandular elements. This certainly seemed to do more good than anything else. The author said that he had found no evidence of the pharyngeal tonsil remaining, but in another case of his own one could see the remains of the pharyngeal tonsil; it was on the posterior wall with granulation tissue upon it, and he removed it by curetting with Gottstein's curette, apparently to the great benefit of the atrophic rhinitis.

Mr. MAYO COLLIER deprecated the discussion being allowed to wander so far from the avowed objects of the paper as to include "treatment." He said he came there, like many others, he presumed, with very little definite knowledge of this disease, and was most anxious to elicit some information as to the probable causation. He himself had seen and treated a large number of cases, but he did not profess to know anything particular about the disease, and still less the lines of guidance in the application of treatment.

In the first place, he wished to thank the author of the paper for a

large amount of information, for many observed facts, which, no doubt, would be valuable, and would greatly assist in arriving at a solution of this puzzling and complicated subject. It had struck him, when listening to the very elaborate descriptions of the pathological changes in most of the tissues as far as the bones, that the author had omitted one point, and that a very essential one. The author had told them of the minute pathological changes in the epithelium, the basement membrane, the blood-vessels, sinuses and bones, but not one word had they heard as to the changes in the nerves. If they considered for one moment the functions of the lining membrane of the nose, they must at once admit that no other mucous membrane in the body had so much to do and was so continuously employed without any periods of rest or intermission. It comprised an apparatus for moistening and warming the inspired air, whatever might be the degree of cold or the percentage of moisture in the external atmosphere. Moreover, it filtered the inspired air and arrested and got rid of any injurious particles of dust or foreign matter.

To ensure this important function the mucous membrane must be in a high state of functional activity, both as to its secreting apparatus and, consequently, even more so as to its nervous mechanism. A slight degree of lessened nervous activity or any impairment of the reflex nerve centres would inevitably result in a break-down of the whole mechanism, and presumably lead to the state of things we are now discussing. They had been told on the unquestionable authority of the author of the paper that the changes in the epithelium, the changes in the lymphoid tissue, blood-vessels and bones—that all these changes were purely atrophic in character, apparently the result of a starved condition of the parts.

Moreover, we knew and had been reminded that afternoon that these changes were gradual changes, probably the growth of years, also that this atrophic process had a tendency to spread to the pharynx, tonsils, and larynx, and, moreover, might be unilateral or partial. They had been told that this disease was not associated, so far as anyone knew, with any general disease or diathesis, and so could not be reasonably held to be a local manifestation of any dyscrasia. The disease, moreover, was seldom or never cured. All these facts were consistent with the view that the initial disease was degeneration of the nerve ganglia and nerve fibres supplying the parts, and, personally, he was not shaken in his opinion by being told that the disease affected only young persons and those up to a certain age, or attacked females in preference to males. All that was perfectly consistent with the theory that the cause was resident in the nerve ganglia.

Mr. LENNOX BROWNE, with all respect to Dr. Woakes, could not agree that his suggested alteration in nomenclature was an improvement; for the term "rhinitis" was generally supposed to be restricted to intranasal structures alone, and not to the nose as a whole, and seeing that rhinitis referred to an inflammation of other parts than the ethmoid bone, he could not allow that the term "ethmoiditis" was preferable. Mr. Mayo Collier had anticipated the speaker, in suggesting disorder of the sympathetic system as a primary etiological factor in the production of

atrophic rhinitis, for as to diathesis the older writers spoke of struma and scrofula as constitutional factors ; but, as had been advanced by the speaker in several editions of his book, these terms merely represented an inability to form healthy blood corpuscles—in other words, a feeble vaso-motor.

He had been struck by the original observation of Mr. Wingrave—the truth of which would be at once recognized—as to the disappearance of all tonsillar and glandular tissues in the disease under consideration. This, taken in connection with the circumstance that in a certain proportion of cases there was thyroid enlargement, materially strengthened the opinion that inherent vaso-motor debility was at the root of the disease. The experience of the writer of the paper, that there was a ponderable proportion of cases which occurred at the onset of menstruation, was not in accord with the speaker's, or at least the circumstance was misinterpreted ; for, as a matter of fact, in the majority of the cases the menstrual epoch was inordinately delayed. As time went on the symptoms, especially that of fœtor, were intensified. A far larger number of cases occurred in early childhood than Mr. Wingrave's tables showed ; and the discrepancy was probably due to the fact that the patients came earlier under notice in private practice, while those now under consideration were mostly hospital cases ; the explanation of the discrepancy was that patients rarely presented themselves for treatment until they or their parents discovered that the stench attending their condition proved a hindrance to their gaining a livelihood.

With regard to the relation of atrophic to hypertrophic rhinitis, the speaker could not agree with the views of Dr. Woakes, that the former state *often* preceded the latter ; and on this point Bosworth, who held that atrophic *never* followed hypertrophic changes, was probably as much in error as Morell Mackenzie and John Nolan Mackenzie, who, in agreement with Dr. Woakes, favoured the opposite sequence.

Mr. Lennox Browne could not agree with Dr. Woakes as to the probability of “a hypertrophic inflammation of the middle spongy bones, associated with stuffiness, and with profuse and slightly offensive discharge,” occurring as a sequence of removal of adenoid growths. Nothing was more striking than the lifelong immunity from nasal and naso-pharyngeal disease after a successful performance of this operation. and the circumstance narrated by Dr. Woakes as “occasional” was in his (the speaker's) opinion not only rare, but fortuitous.

It is quite true that there is a form of atrophic rhinitis which follows hypertrophic rhinitis, or may even co-exist with it, in an opposite nostril, but this is not the variety now under consideration. It is, however, absurd to speak of hypertrophic rhinitis in children under the age of puberty, for until that period, in point of fact, the turbinal bodies have not arrived at mature growth, and the theory of Gottstein, that arrested development originates the pathological changes, is the most reasonable yet offered. The speaker was of opinion that syphilis is only an exceptional factor in the causation of the disease.

Finally, Mr. Wingrave had alluded to the specific fevers as rare excitants of atrophic rhinitis. The speaker had seen one case in which

after an attack of typhoid fever, marked improvement resulted, an exceptional experience not without parallel in connection with disease in other regions of the body.

Mr. MARSH said there appeared to be four theories advanced: (1) a special diathesis, (2) micro-organisms, (3) vaso-motor changes, and (4) necrosis. He did not believe there was a special diathesis. He had seen in a family of children, brought up under precisely similar conditions, one suffer and all the others escape. The rôle played by micro-organisms must be left undecided for the time being. It was not at present as probable a theory as the one promulgated by Mr. Mayo Collier. He had never detected necrosis in typical cases of atrophic rhinitis.

The PRESIDENT, expressing on behalf of the Society his thanks to Mr. Wyatt Wingrave for the careful paper which he had read, thought the discussion had been a fruitful one, inasmuch as they had heard a good deal about this important subject from the clinical and pathological standpoints. The results obtained in these two departments do not always coincide, but the inconsistencies are in all probability more apparent than real. Dr. Woakes had wisely said that to bring such ideas before us and let them simmer in our minds often proved of great benefit, and he had no doubt this would be the case with the present discussion. Mr. Wyatt Wingrave pointed out microscopical features, including the presence of certain bodies which might be parasitic in nature, but until Koch's postulates were fulfilled nothing definite could be said about them. He had no doubt that before many years passed Mr. Wingrave's paper would be looked back upon with great interest (probably historical interest), and would show that we were at the present time groping towards something at present little understood, but a subject upon which considerable light would in all probability soon be shed.

LARYNGOLOGICAL SOCIETY OF BERLIN.

Meeting, January 12, 1894.

Drs. B. FRAENKEL and LANDGRAF were elected presiding officers;

Drs. P. HEYMANN and A. ROSENBERG, Secretaries.

Dr. KRONEBERG showed a patient in whom the diagnosis of tabes was definitely arrived at only after an examination of the larynx. During calm respiration the right ventricular band approached the median line, and made only slight abductive movements, whilst the left band moved in a jerking manner. In the last few weeks a tremor had replaced the jerks, which Kroneberg does not consider to be ataxic, but caused by muscular degeneration.

Dr. ROSENBERG reported two cases of recurrent paralysis in tabes. He deemed it advisable that from a general medical point of view those

changes in the larynx which so frequently appear among the first symptoms of tabes should be watched with closer attention.

Dr. SCHEINMANN reported that he had observed in the patient introduced at the last meeting, besides the clonic jerks in the muscles of deglutition, similar clonic jerks in the larynx and in the group of abductors.

Dr. GRABOWER stated that the patient shown at the last meeting, and suffering from apparent central recurrent paralysis, died of pneumonia. The *post-mortem* examination proved the presence of an aneurism of the aorta, which had caused atrophy of the first and second dorsal, and the last cervical vertebræ. There was no trace of recurrence. It was therefore a case of peripheral paralysis. The aneurism was covered during lifetime by a large emphysema of the lungs.

Dr. SCHÜTZ mentioned, as a curiosity, a case of aneurism of the aorta accompanied by hoarseness. Schütz was confident of finding a recurrent paralysis, but instead discovered a pretty large polypus, situated in the ventricle. After operation, the patient spoke with a clear voice.

Dr. LANDGRAF read a paper upon *Pathology of the Soft Palate*. He divides the paræsthesia of the pharynx into three groups. (1) Hysterical and neurasthenic patients with but slight changes. (2) Changes are present in the pharynx, but their importance is not in proportion to the intensity of complaints. (3) Patients by no means of a nervous disposition, but who constantly complain about the same feeling in the pharynx. Landgraf observed three cases of the third variety which deserve particular mention. (*a*) A man, forty-five years of age, complained of unpleasant sensations in the left palate, especially during ordinary swallowing. The tonsils, especially the upper part, were hyperplastic. Where the palatine arches diverged, a cavity about two millimètres wide, surrounded by a wall, was visible on both sides. Through this it was possible to penetrate to the median line, and upwards into a pouch. (*b*) A man, twenty-five years of age, with a similar complaint and a similar condition. Landgraf considered these changes to be *tonsilla succenturiata*. (*c*) A man, twenty-seven years of age, complained of feeling a foreign body in the left part of the anterior palate. He found under the mucous membrane a movable body the size of a swollen lentil.

Dr. B. FRAENKEL doubted whether cases (*a*) and (*b*) were not branchial fistulæ.

Dr. HERZFELD mentioned several cases of congenital fissure formations in the palatine arches.

Edmund Meyer.

REVIEWS.

Gerber. — *Spülformen hereditärer Syphilis in den oberen Luftwegen.* ("Late Forms of Hereditary Syphilis in the Upper Air-Passages.") Beiträge zur Klin. Medicin und Chirurgie, Heft 5, with 12 illustrations in the text, 105 pages. Wien und Leipzig: Wilhelm Braumüller, 1894.

IN the review of the old and new literature upon this subject, the author remarks that hereditary lues arises with preference a short time after birth and at the age of puberty; but cases are also observed in which the first symptoms arose at a later age, exceptionally at the end of the third decennium of life. Of nasal syphilis the first form, rhinitis hyperplastica, is the anatomical substratum of the so-called coryza neonatorum; in later life the disease arises in the form of rhinitis atrophicans, and many cases resembling genuine ozæna are of syphilitic origin. This the author proves by examples from his own practice and that of others. The treatment consists in the internal use of iodide of potassium and local application of Lugol's solution. He then describes the different forms of malformation of the nose produced by this affection. In the mouth and pharynx we observe as early forms (1) erythema, *i.e.*, acute syphilitic catarrh; (2) *plaques muqueuses*; and, as later forms, (3) gummata. The affection may originate in all parts of the cavity, and may produce many remarkable malformations and adhesions by cicatricial contractions. In hereditary laryngeal syphilis we may distinguish laryngo-tracheitis catarrhalis, condylomata and gummata. There may also be produced functional chronic anomalies and stenoses from cicatricial contractions. The author then gives a list of all cases of laryngeal syphilis published up to now, and concludes with the treatment, recommending an energetic local and general antisiphilitic medication. *Michael.*

Zuckerkindl, E. (Wien). — *Normale und pathologische Anatomie der Nasenhöhle und ihrer pneumatischen Anhangs.* ("Normal and Pathological Anatomy of the Nasal Cavity, and its accessory Pneumatic Cavities.") First Volume. Second (enlarged) Edition. Four hundred pages, with thirty-four lithographed plates. Wien: Braumüller. 1893.

THIS volume has twelve lithographed plates and two folios of diagrams more than the first edition. We can here only mention the additions and improvements of the new edition, having extensively reported the first edition in this Journal, which first edition we believe reached everyone's hands, and became an indispensable anatomical book of reference for every rhinologist. The anatomy of the external nose is more extensively described, especially its vessels, which are illustrated by a new plate. There is an exact description of the pre-nasal fossæ, with schematic drawings. The nerves and muscles of the nose are also dealt with. The chapter on the section of the nose is increased by the description of Hacke's sagittal section. In the description of the bony nose the comparative anatomy is reviewed, and in the same manner its embry-

logical development is treated. The anatomy of the soft part of the nose, the vessels, and lymphoid gland nerves, are all new in this second edition. The descriptions of the olfactory nerve and the olfactory centre, formerly treated of in a special work (see the report in this Journal), are likewise included in this book. The anatomy of the accessory cavities is also completed by the description of their mucous membrane and their comparative anatomical relations. In the numerous new plates we find excellent illustrations of the musculature and vessels of the nose, histological details, pictures of the olfactory centres, and new normal and pathological sections.

Michael.

A Text-Book of Diseases of the Ear. By Dr. JOSEF GRUBER, Professor of Otology in the University of Vienna, etc., translated from the second German edition, and edited, with additions, by EDWARD LAW, M.D., C.M., Edin., M.R.C.S. Eng., Surgeon to the London Throat Hospital, and COLEMAN JEWELL, M.B. Lond., M.R.C.S. Eng., late Surgeon to the London Throat Hospital. With 165 illustrations, and 70 coloured figures on two lithographic plates. Second English Edition. London: H. K. Lewis.

ON the comparatively recent appearance of the first edition of this translation we, in common with other reviewers, had the very easy duty of pointing out in considerable detail the excellencies of the work, and of recommending it as an exhaustive treatise and reliable guide. In this edition the fundamental basis of the book, the faithful translation of Professor Gruber's German text is reproduced in full, and in its previous form. The many English and American readers for whom it is intended will therefore have no difficulty in studying the matter exactly as presented by the original writer. At the same time the translators have taken upon themselves the responsibility of adding in the form of a series of notes—distinctly marked as such—those additions that seemed necessary for the purpose of bringing the work abreast of the position to which the science of otology has been brought by the recent activity of general and special surgeons. We need add nothing to what we said before with regard to the former part of the work, but content ourselves with adverting to them after contained in the notes, for which the editors hold themselves responsible, and for which they are entitled to every credit. We may signalize (pp. 146-150) a full and judicial summing up of the value of the various tests for the differential diagnosis between affections of the sound-conducting and of the sound-perceiving apparatus, also (p. 324) their reasonable cautions with regard to operations on exostoses, the post-influenzal forms of otitis (pp. 356-357), including the views of Gruber, Politzer, Urbantschitsch, and others. The symptoms and treatment of post-nasal adenoid growths are well set forth (pp. 378-387), with a description of all the most approved instruments, and a discussion of the use of anaesthetics. Preference is given to Loewenberg's forceps, and general anaesthesia is deprecated, but chloroform is advised rather than ether, the latter increasing the nasal obstruction and the subsequent hæmorrhage. Enlargement of the tonsils, tonsillotomy, and its possible hæmorrhagic complications receive similar consideration (pp. 388-389). "Attic" suppuraton (pp. 418-419) receives due attention, mention being

made of Gruber's recent method of suction of pus by means of the exhausting speculum and tamponing with iodoform wool. A chapter on the intra-cranial complications of ear disease, in the treatment of which our British surgeons have been of late so active, is interpolated (chap. XIV. A), and contains a very satisfactory and condensed account of the subject, large contributions being evidently levied on Mr. Barker, whose Hunterian lectures did so much to diffuse the knowledge of these dire complications. The bibliographical list appended to this chapter is invaluable. The pilocarpin treatment of nerve-deafness is discussed (pp. 580-582), and the very sensible suggestion is made that it should be carried out by the ordinary medical attendant at the patient's house, so as to avoid the chill arising from damp underclothing. Additions are made in connection with the subject of excision of ossicles and of deaf-mutism. Altogether this edition is well "up to date," and deserves a rapid sale.

Dundas Grant.

Moure, E. J.—*Manuel pratique des Maladies des Fosses Nasales, etc.* Second edition. Paris: O. Doin. 1893. Pp. 610.

THIS volume is about double the size of that of the first edition. This is due to the inclusion of several new chapters, and to the re-writing of some of the old ones. The book is eminently practical, containing everywhere the impress of Dr. Moure's personality. The author has not been content to merely reproduce diagrams at second hand, but has illustrated his work with many original woodcuts, thus enhancing its value. Especially is this the case with the figures illustrating the chapters upon the accessory nasal cavities, pages which convey much useful information, clearly imparted, upon a very obscure portion of nasal pathology. A praiseworthy feature of the book is the very careful directions given as to treatment of the commoner nasal affections, which makes the work of especial value to the practitioner. A good chapter upon general therapeutics is found at the commencement of the book, following upon useful chapters on the anatomy and methods of examination of the nasal cavities. Dr. Moure has, wisely, not attempted any method of classification of nasal disorders. The book is one of the best students' manuals with which we are acquainted, and is one well worthy of translation into our own language.

R. Norris Wolfenden.

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**THE TREATMENT OF TUBERCULOSIS OF THE
LARYNX AND LUNGS**

BY MEANS OF SUBCUTANEOUS INJECTIONS OF THIOSINAMIN.¹

By Dr. JOHN SENDZIAK, Warsaw.

THE attempts at rational treatment of tuberculosis of the lungs, and especially of the larynx, made by Robert Koch some years ago with tuberculin, although they gave at that time no satisfactory results, did not remain fruitless. This is not singular, since the idea itself was at any rate rational. Klebs, Eichberg and Thorner,² both of Cincinnati, participated in this idea, and worked to improve Koch's method. The first employed for experiments the so-called tuberculoceidin, the latter two the so-called B-tuberculin (Hunter). They are said to have achieved fair results—Eichberg in the treatment of pulmonary, and Thorner in laryngeal tuberculosis.

Liebreich of Berlin further recommended cantharidinate of potash, having an analogical action to Koch's tuberculin.

Lastly, in the autumn of 1892, Hebra,³ the well-known professor of dermatology in Vienna, reported at the International Congress of Laryngology very promising results from the subcutaneous injection of thiosinamin, especially in lupus, and partially in pulmonary tuberculosis.

Encouraged by the favourable results reported by Hebra, I resolved

¹ A paper read before the Medical Society of Warsaw, November 22, 1893.

² Some Experiments with Modified Tuberculin. The Treatment of Tuberculous Laryngitis with Modified Tuberculin. The "Medical News" (1893) Reprints.

³ Wiadomosci terapeutyczne. "Gazeta Lekarska," 1893, No. 1.

to undertake a series of experiments in order to convince myself how far thiosinamin is effective in laryngeal pulmonary tuberculosis.

Before passing to the special description of cases observed by myself in hospital practice (eleven in all, of which ten were tuberculosis of the larynx and lungs, and one lupus of the nose), I shall devote some remarks to the drug itself.

Thiosinamin, or allylsulpho-carbamide, which is represented by the formula $\text{C S } \begin{smallmatrix} \text{NH} & \text{C}_2\text{H}_5 \\ & \text{NH}_2 \end{smallmatrix}$, presents itself in the form of a white—somewhat glistening—crystalline powder, without odour, and with a bitter taste, dissolving in water, alcohol and ether.

Experiments upon animals (dogs) proved the complete harmlessness of subcutaneous injections of thiosinamin, the action of which is analogous to tuberculin, only differing from this latter by the absence of general reaction, which forms, as is known, the negative feature of Koch's remedy. Similarly to tuberculin—thiosinamin, after injection into a region distant from the affected place, produces a local reaction only in this latter.

In my cases I strictly observed the rules of Hebra, and I used for injections 15 per cent. of the alcoholic solution of thiosinamin. I generally selected for injections the intra-scapular space; exceptionally I made deep parenchymatous injections in the buttock. In general, I must say that injections of thiosinamin are by no means painless, the reason probably being the use of an alcoholic solution. The pain, although sometimes very poignant, lasts commonly only a short time. It is superfluous to say that these injections were performed according to the strictest rules of antiseptics. In spite of this, I sometimes observed a formation of inflammatory infiltration, which, however, disappeared after employing the usual remedies (cold compresses, &c.) without causing suppuration.

Keeping to the principle that we must be careful with the dose of every new—i.e., not quite approved—drug, especially subcutaneously applied, I began with the smallest doses, that is, with 0.030 gramme of thiosinamin. It is the minimal dose employed by Hebra. At first I generally made injections twice a week, afterwards oftener, every third and even every other day, constantly increasing the dose. In this manner I arrived sometimes at a whole syringe full, i.e., 0.150 gramme of thiosinamin.

Naturally I always paid attention to the reaction, local and general. This latter appears sometimes in laryngeal and tubercular phthisis, as Hebra already reports, advising for this reason a careful application of thiosinamin in phthical patients.

I shall not tire the reader with a minute description of all cases observed by me, more particularly as they will be fully published in "*Pamiętnik Warszawskiego Towarzystwa Lekarskiego*."

I shall here only present an analysis of these cases, in order to justify my conclusions as to the therapeutic properties of subcutaneous injections of thiosinamin in tuberculosis of the lungs and larynx, as much as is possible from small material.

As regards the first case, in which I made the greatest number of injections (twelve) in the largest dose (the whole syringe full, i.e., 0.150 gramme—hospital observation during one and a half month), in the begin-

ning it presented some difficulties of diagnosis. On the one hand, the laryngoscopic picture (infiltration and ulceration of the epiglottis and right ventricular band), as well as indurative changes at the summits of the lungs, in the absence of history of syphilis, and also from the inefficacy of the specific (iodide of potassium) treatment formerly applied, supported a diagnosis of tubercle of these organs; on the other hand, however, the constant absence of tubercular bacilli in the sputa, the healthy appearance of the patient, and, lastly, a comparatively slight local reaction after subcutaneous injections of thiosinamin, made the diagnosis rather uncertain. The thought arose that we had to deal with a syphilitic process of the lungs (which is rare) and larynx, the more so because the laryngeal picture in this case, as often happens, was characteristic neither of tuberculosis nor of syphilis of the larynx, and, lastly, the combination of both these diseases was possible.

In order to remove these doubts I once more gave iodide of potassium in larger doses. When, however, it not only did not effect improvement in the local state of the larynx, but partial deterioration even ensued, I rejected the idea of syphilis, especially as fresh examination of the sputa made the diagnosis of tuberculosis quite sure.

In this case, except for transitory objective amendment (cleansing of ulcers of the epiglottis, slight diminution of infiltrations, especially on the right ventricular band), I achieved no result from thiosinamin. I must here, however, add that the subsequent local treatment (lactic acid) did not lead to any result.

This case differed from the others by the appearance of circumscribed infiltration at the place of puncture after the eighth injection of thiosinamin, which, however, disappeared in a short time without suppuration.

Subsequently I made a couple of deep (parenchymatous) injections of thiosinamin in the buttocks, which were borne in general well enough.

In this case as well as in others I did not observe any more distinct general reaction after the application of thiosinamin. Although twice the temperature increased, but not directly (on the next day) after the injection, it probably depended on other reasons (gastric disturbances)—at least, it did not reappear.

As to the local reaction, it was, as I have already mentioned, strange to say, mostly minimal—slight redness, sometimes a little more expressed swelling of the affected parts of the larynx. In the lungs I could state absolutely no changes under the above treatment. As to the general condition, at first constantly satisfactory, it began towards the end to deteriorate (the diminution of weight reaching two pounds). In this case also we could remark gradual increase of the daily quantity of urine passed, which never contained any albumen.

The *second case* differed considerably from the above as to the action of thiosinamin. I made nine injections, proceeding also to the largest dose (0.150 gramme). The observation lasted about two months. In this case, after the first injection of thiosinamin, the local action was pretty strongly expressed; considerable improvement could be remarked, and that not only subjectively (the voice and swallowing becoming better), but what is more important objectively (infiltrations of the ventricular

bands becoming less, and commencing healing of ulcers). Although this condition was subjected to momentary deteriorations, some effect from the thiosinamin could not be denied in this case.

Quite different was it with the tubercular process in the lungs, which, on the contrary, not only was not amended, but, after the first injection of thiosinamin, deteriorated somewhat gradually (more distinct symptoms of infiltration at the summits, and, finally, the commencement of destruction). Whether thiosinamin was here the cause I will not say, but there seems to be no doubt, as this case shows, as well as others, that this drug does not produce any positive therapeutic effect on the tubercular process in the lungs.

As to the general condition; at the beginning it was pretty fair, the best proof of this being the considerable increase of weight (two kilogrammes during one month) under the bad hospital conditions.

Finally, however, the general condition began also to deteriorate; the temperature, hitherto normal, or only a little increased, began to rise to 39° C. and more. In the evening, hectic symptoms (chills, perspiration, etc.) appeared, and at last *exitus letalis* ensued. It is a pity that an autopsy could not be performed. I could not remark any distinct influence of thiosinamin upon the urine, pulse, and respiration.

In the third case, in which five injections of thiosinamin were administered, and which at first presented a very extensive process in the lungs, as well as a bad general condition, the effect of thiosinamin was almost *nil*. In the larynx a slight subjective and objective (slight diminution of infiltration of the posterior laryngeal wall) amendment was remarked. In the end, however, the condition remained the same. In the lungs the process was gradually spreading. General reaction was absent (condition was always febrile); the local reaction in the larynx was but slightly expressed.

In the fourth case, in which four injections of thiosinamin were made, a pretty considerable—in comparison with the other cases—amelioration was observed almost to the last moment. This amendment was especially expressed in the local state of the larynx. The ulcers, of which one was deep, and extending along the whole left vocal cord, began to clean and then to heal. The general state, however, shortly began to deteriorate (in the course of two weeks there was a diminution of weight, amounting to four and a half pounds), likewise in the lungs the destructive process progressed constantly, which at last was the reason why further injections of thiosinamin were discontinued. The state of the larynx towards the end began to deteriorate, but not in such a degree as in the lungs and the general condition.

As regards the changes in the right ear—probably tubercular (the secretion was unfortunately not investigated as to the presence of Koch's bacilli)—the reaction after the injection also was observed, though not very distinctly, in the form of augmented purulent secretion, greater redness, as well as swelling of the tympanic membrane, so that to a certain degree the diagnostical signification of thiosinamin in cases of tubercular affection of the ear was supported. But there was no positive influence observed of thiosinamin on the process in the ear.

In this case also—the only one observed by myself—the general reaction appeared three times in the shape of considerable increase of temperature (after six hours, as is usually the case after injection) up to 39° C., although once, after the third injection, the temperature fell on the contrary from 38·6° C. in the evening to 38·0° C. This case proves the fact, stated by Hebra, as to the possibility of general reaction in tubercular patients, and for this reason, in far advanced cases with fever, we must be careful in the application of this drug.

The fifth case, in which only three injections of thiosinamin were administered, gives occasion for some more general remarks. It proves the generally accepted fact that inasmuch as the positive result of investigation of phthisical sputa has great importance (be it diagnostically in commencing cases, or affirmatively in more marked cases), so a negative result, even if manifold (as in the above case, affirmed by autopsy), has no signification. In this case the fact also deserves attention that, after the first injection of thiosinamin, causing small local reaction, a severe attack of dyspnœa ensued suddenly in the night, disappearing, however, shortly after. The examination next day did not discover any cause which could explain this attack. What is the explanation of this fact? Did it depend on thiosinamin? This I cannot say. At any rate, I think that in similar cases, *i.e.*, in affection of the crico-arytenoid joints, and generally in stenosis of the glottis, more than usual care must be taken.

At the first the considerable amendment in the local state, noticed subjectively under the influence of injections of thiosinamin (diminution of dyspnœa), and objectively (diminution of infiltration, and especially increased mobility of the right half of the larynx), finally ended in gradual deterioration. The general condition became worse also; in the lungs the process was deteriorated. At last *exitus letalis* ensued. The autopsy showed extensive changes in the larynx and lungs. The conclusive result of the treatment with injections of thiosinamin in this case must be called negative.

The sixth case, in which also three injections were made, differed from the others (1) in that after the first injection of thiosinamin a slight albuminuria appeared, which, however, disappeared next day, and was not repeated; (2) during ten days, in conditions unfavourable for the patient (the general ward of a hospital), an increase of weight of two kilogrammes (five pounds) was noticed. The state of the lungs remained the same; in the larynx a certain, though not great, improvement could be observed. It was subjective (less dyspnœa) as well as objective (infiltration somewhat less, the movements of the right half of the larynx a little freer). General reaction was absent, and the local reaction (in the larynx) very slightly expressed.

In the seventh case, complicated with pregnancy (seventh month), I performed only three injections of thiosinamin on account of increasing general debility. Subjectively there was slight amelioration (dyspnœa less); objectively the state of the larynx remained without change. The same in the lungs. The general reaction was quite unnoticeable; the local reaction (in the larynx) very slightly expressed.

The eighth, ninth, and tenth cases, on account of shortness of observa-

tion, and of too few (one) injections of thiosinamin, cannot have great importance in the analysis of the therapeutic properties of this drug.

In the tenth case, it is true, after one injection, a certain, though slight, amendment was noticed in the local state of the larynx; in the other (eighth and ninth) cases, however, no effect at all could be remarked. In the tenth case, the third day after injection, a sudden attack of dyspnoea occurred. It was, however, caused by a complication with peritonsillar abscess.

There was no trace of general reaction. The local reaction was very slight, and there was no distinct influence on the course of temperature in the ninth case. In this case also the fact deserves attention that, after injection of thiosinamin, local reaction under the form of oedema and redness of the affected (infiltrated) posterior laryngeal wall took place, while the growth on the left vocal cord, having all the appearance of a simple polypus (unfortunately the growth was not extracted and its nature microscopically determined), showed no traces of reaction. It would speak in favour of the diagnostic significance of thiosinamin, as was commonly accepted for tuberculin. General reaction in this case was also absent.

It remains still to describe the last (eleventh) case of lupus of the nose, the only one which I had occasion to treat with thiosinamin. In this case I performed five injections in the usual manner. The patient unfortunately, in spite of undoubted amendment, left the hospital at his own request.

The distinct amelioration appeared after the third injection, when the extensive and thick crust on the left ala of the nose fell off, leaving a healthy granular surface. Although after the following (fourth) injection a slight deterioration took place, it was only temporary, and was evidently caused by too strong local reaction (the injections in gradually increased doses were in this case administered daily). In this case also, upon which Hebra puts special emphasis, the general reaction was quite absent. Judging from this single case of lupus of the nose I reserve my conclusions as to the therapeutic properties of thiosinamin in this disease.

Relying upon the above observations, though not very numerous, I make bold to state the following conclusions:—

1. Thiosinamin, subcutaneously applied, can, in certain cases, have a positive influence upon the course of the tubercular process in the larynx. This is proved by the second, fourth, and partly by the sixth cases.

2. Upon the tubercular process of the lungs thiosinamin seems not to have any positive influence, or even to produce a negative effect.

3. Also upon the general condition in most cases this drug does not act satisfactorily.

4. In lupus of the nose thiosinamin, like tuberculin, can, Hebra asserts, be applied with comparatively great advantage.

5. This drug seems not to produce general reaction—which, as is known, was the weak point of Koch's remedy—but it must be applied with certain precautions in tuberculosis of the lungs and larynx.

Finally, after performing the above observations, I arrived at the conviction that the results obtained by me with thiosinamin, sub-

cutaneously applied, in tubercular diseases of the larynx and lungs, are not too encouraging, which disheartened me from further experiment with this drug.

In my opinion, thiosinamin, so warmly recommended by Hebra in laryngeal and pulmonary tuberculosis, will share the same lot as its antecedents—Koch's tuberculin, Kleb's tuberculoëidin, and Liebreich's cantharidinate of potash—*i.e.*, it will be lost in oblivion.

After having sent this paper to the press, I found in the "Centr. für Klin. Med.," No. 36 (9th September, 1893), a paper by Spiegler (of Prof. Kaposi's clinic), under the title of "Ueber Lokalreaction in Folge hypodermatische Einverlebung chemischer Verbindungen." Among other drugs, acting similarly to Koch's tuberculin and thiosinamin, the latest drug of Hebra was tried by the author.

Of course, agreeing with Hebra as to the appearance of local reaction in lupus, obtained by thiosinamin, Spiegler affirms that he did not determine any more distinct therapeutic effects of this drug in this disease, and he was obliged to return to his former, *i.e.*, local treatment.

INSTRUMENTS, THERAPEUTICS, DIPHTHERIA, &c.

Lautenbach, L. J.—*A New Tongue Depressor and an Ear Screw for the Removal of Foreign Bodies.* "Med. News," Jan. 27, 1894.

THE former is made entirely of German silver, and is so bent as to depress the tongue without touching the teeth. The latter is especially for removal of non-metallic bodies impacted in the meatus by means of a double-threaded and double-pointed screw steel probe. *R. Lake.*

Heryng (Warsaw).—*Rotatory Double Curette for Endo-Laryngeal Operations.* "Annales des Maladies des Oreilles, etc.," Nov., 1893.

A MODIFICATION of the curettes of Krause and Landgraf, for use in the treatment of laryngeal phthisis. *Joub.*

Schlossarek.—*A Phantom for the Study of Intubation.* Gesellschaft der Aerzte in Wien, Meeting Jan. 5, 1894.

THE author showed a phantom for the study of intubation, and spoke of the *technique* of intubation.

GROSSMANN remarked that twenty years ago catheters were introduced in diphtheritic stenoses. At the time intubation was invented he believed it to be a very good method, but experience has shown him that the relief is only of short duration.

EASENSCHUTZ believed that the method marks great progress.

WIEDERHOFER also believed that a great many diphtheritic children would be cured by intubation.

SCHRÖTTER said that his own instruments very much resembled O'Dwyer's tubes, and that ten years ago many hundreds of cases had been treated by him by this method. *Michael.*

Savory, Sir Wm. (London).—*Gout in Relation to Surgery.* "Lancet," Jan. 13, 1894.

AMONG other affections due to gout, the author refers to those of the auditory apparatus as deserving more attention than they have hitherto received. "These include, no doubt, not only deafness of every degree, "but the various forms of tinnitus and other abnormal sensations more "or less directly connected with the ear; giddiness in more than one of "its forms, and sickness." [It will be familiar to many of our readers that the late Mr. Harvey ascribed a very large number of aural troubles to this constitutional state. The indications for the diagnosis of gout in the less marked cases are not very clear. The occurrence of vertigo and tinnitus as results of increased arterial tension, and the beneficial effect of milk diet and iodide of potassium, have been already adverted to in our abstracts.—REP.] *Dundas Grant.*

Stipanics (Buda-Pesth).—*Alumnae in Catarrhal Diseases of the Upper Air-Passages.* "Pesther Med. Chir. Presse," 1893, No. 93.

RECOMMENDATION of the application of this drug. *Michael.*

Onodi (Buda-Pesth). *Argyrosis.* "Rev. Mens. de. Laryng.," Jan. 1, 1894.

THE case of a patient who had a grey tint of the face, black teeth, grey tongue, and black gums, after having made during six years, every two or three days, swabbings of the pharynx with a strong solution of nitrate of silver. *Joal.*

Silk, F. W. (London).—*Celluloid Face-Pieces and Masks for the Administration of Anæsthetics.* "Lancet," Jan. 13, 1894.

THIS beautiful material is employed for making transparent face-pieces and masks, so that the patient's face can be better seen during the administration, and a certain amount of moulding is possible.

Dundas Grant.

Redman, W. E. (London).—*Chloroform in Nasal Growths.* "Lancet," Jan. 20, 1894.

THIS writer deprecates general anæsthesia, considering the application of a ten per cent. solution of cocaine sufficient. Though no death has occurred, he recalls two cases of narrow escape from asphyxia.

Dundas Grant.

Wilkin, C. W. (London).—*Chloroform in Nasal Growths.* "Lancet," Jan. 20, 1894.

THE author points out that chloroform has been used at the London Throat Hospital for seven years, with very few exceptions, by itself as the anæsthetic in the removal of these growths, as well as in other operations, and there has been only one death. He dwells on the impropriety of allowing cases of adenoids to go untreated. *Dundas Grant.*

Holloway, W. G. (London).—*Chloroform in Nasal Growths.* "Lancet," Jan. 6, 1894.

THE author draws attention to the sufficiency and safety of nitrous oxide, as compared with chloroform, in the removal of adenoid growths from the naso-pharynx.

Dundas Grant.

Bailey, G. H. (London).—*Chloroform in Nasal Growths.* "Lancet," Jan. 13, 1894.

THE author recommends for the shorter cases gasalene, continued, if necessary, with a whiff of ether. For others the preliminary gas, then ether to the full anæsthetization of the patient, followed by chloroform administered by Junker's inhaler.

Dundas Grant.

MacGregor, P. (Huddersfield).—*Chloroform in Nasal Growths.* "Lancet," Jan. 20, 1894.

THE author attributes much of the danger to the occluded state of the nostrils. He thinks that, with increased experience, nitrous oxide will be found less safe than is supposed.

Dundas Grant.

Guthrie, Leonard G. (London).—*Some Fatal After-Effects of Chloroform on Children.* "Lancet," Jan. 27 and Feb. 3, 1894.

FROM a study of nine cases in which death followed comparatively slight surgical operations after an interval of apparent recovery for a number of hours, Dr. Guthrie comes to the conclusion that they are to be thus explained:—(1) They were in most cases due to auto-intoxication; (2) a fatty condition of the liver, and therefore functional disturbance of the organ existed before the operations; (3) chloroform and operation-shock combined aggravated the condition already present, and thus loaded the system with toxic alkaloids, which the kidneys were unable to eliminate. The practical results of such views are: (1) That in no case should chloroform be given to patients suffering from fatty liver; (2) that, as it is impossible from physical signs and symptoms to do more than surmise the existence of fatty liver, we must rely on signs of functional inactivity of the liver as indicated by the presence of excess of alkaloidal substances present in the urine; and (3) that the precise nature of these alkaloidal substances and the best methods of detecting them must be left for further investigation. In the way of treatment he advises the avoidance of alcohol with morphia, opium, and other anodynes, but thinks citrate of caffeine and carbonate of ammonia might be of service. A case which recovered was characterized by hæmorrhagic diarrhœa; so purgation, which has been found beneficial in acute yellow atrophy of the liver, may be beneficial. [The paper is well worthy of attention.] *Dundas Grant.*

Bleyer, J. M.—*A Report of Three Recovered Cases of Asphyxiation from Illuminating Gas: with some Observations on the Respirability of Oxygen, and a Description of a New Respiring Tube.* "The American Therapist," Nov., 1893.

THE first case had been in a room gradually filling with gas for eight hours, and was twenty-two hours unconscious. The other two had been

about nine hours in a gas atmosphere, and were restored in three hours. In the first, almost pure oxygen was used; in the second, only a small proportion of oxygen to a large one of compressed purified air. The author considers oxygen too heavy a gas to easily enter the system, *via* the alveoli, and prefers pure atmospheric air. He used a tracheal tube, fourteen inches long, with a bifurcated upper extremity, one for expiration and one for inspiration. It is introduced through the larynx to within one and a half inches of the tracheal bifurcation.

R. Lake.

Jennings, C. G.—*The Treatment of Diseases of the Nose and Throat in Infants and Young Children.* "Archiv. of Pediatrics," Jan., 1894.

THE author, taking scarlatina as a disease in which the throat manifestations may be dangerous to life, goes on to say that recent views are that the streptococci and staphylococci of pus develop in great numbers in this disease, and that cervical adenitis and abscess, purulent otitis media, endocarditis, pleurisy, etc., are due to their absorption, and that these conditions are preventible by local treatment of the throat and nose, and that diphtheria should be treated in the same way. The methods of irrigating the naso-pharynx are the spray, anterior and posterior nasal syringe, and the naso-pharyngeal catheter. He stigmatizes the spray as inefficient, as a rule, except in slight cases; the syringe is by far the most effective instrument for cleansing the nose and throat, and the best one for the purpose is Davidson's soft rubber syringe, No. 6, on account of its long soft nozzle. The catheter, No. 4, soft rubber, is indicated where there is anterior nasal plugging. The solutions used by the author are Seiler's, either alone or with peroxide of hydrogen (15 vol.), listerine, 1 in 15 to 20; corrosive sublimate, 1 in 8000 to 10,000. These remedies are used by the syringe every hour in slight cases of diphtheria, for the first day or two mild, in scarlatina also, including the pharynx every third time; naso-pharyngeal diphtheria every four to six hours with the catheter; and by the catheter in all severe cases of either disease when the naso-pharynx is involved, and the catheter can be quickly slipped down the oesophagus and food administered.

R. Lake.

Fraenkel, C. (Marburg).—*On Loeffler's Diphtheria Bacilli.* "Deutsche Medicin. Zeitung," 1893, No. 101.

THE author concludes that in cases of true diphtheria virulent and non-virulent bacilli are found; the non-virulent forms have no relation to the disease, and are often also found in healthy mouth cavities. It is possible that under special circumstances the harmless bacilli may become virulent, and that in this manner unexplained cases of infection can be accounted for.

Michael.

Sutton, H. Grant (Sittingbourne).—*Diphtheria and its Causation.* "Lancet," Jan. 13, 1894.

THE author attributes an outbreak of diphtheria in the village of Upchurch to the dust blown from collections of refuse from London dustbins accumulated in the neighbourhood, and asserts the utter absence of any other source of infection.

Dundas Grant.

Rickard, W. L.—*A Note on the Local Treatment of Diphtheria.* "Brooklyn Med. Journ.," Dec., 1893.

TWO cases in which papoid was used with success as far as the membrane went, but only one case survived. *R. Lake.*

Friedmann.—*Sphymomanometric Examinations in Diphtheria.* "Jahrb. für Kinderheilk.," Band 36, Heft 1 and 2.

IF good blood pressure exists the disease gives a good prognosis ; if there are great differences in pressure it is doubtful ; and if the pressure is less than sixty milligrammes nearly all cases are fatal. The author believes therefore that sphymomanometric examinations are of great practical interest, because by this method of research the intensity of the intoxication of the heart can be measured. *Michael.*

Donath (Wien).—*Case of Diphtheritic Hemiplegia.* "Wiener Med. Presse," 1893, No. 41.

A BOY, eight years old, had diphtheria fourteen days previously. Suddenly there occurred in the night complete hemiplegia of the right side and complete aphasia. Improvement occurred under farado-galvanization, and continued for some weeks. The author believes that there had been a cerebral hæmorrhage. *Michael.*

Siebert (New York).—*Sub-Membranous Local Treatment of Pharyngeal Diphtheria.* "Jahrb. für Kinderheilk.," Band 37, Heft 1.

THE author uses a syringe, to the under end of which is attached a piece of metal with five perforated needles. With this instrument he injects chlorine water into the substance of the tonsils in cases of membranous diphtheria. He has applied this method in one hundred and four cases of diphtheria and twenty-two cases of scarlatinal necrosis with good results. *Michael.*

Frölich.—*Application of Turpentine, especially in Diphtheria.* "Münchener Med. Woch.," 1893, No. 57.

RECOMMENDATION of this treatment. *Michael.*

Klebs (Carlsruhe).—*Concerning the Kossel's Abstract of the Author's Paper on the Treatment of Diphtheria in No. 36 of the "Deutsche Med. Woch."* "Deutsche Med. Woch.," No. 48.

POLEMICAL article. *Michael.*

Hagenbach, Burkhardt (Basel)—*Remarks upon Köhl's Paper.* "Correspl. für Schweizer Aerzte," 1894, No. 2.

THE author concludes : "Retention of secretion is a well-observed fact, and exists sometimes without any stenosis of the larynx." (See the report of his paper.) *Michael.*

Regli.—*Diphtheritic Epidemic in Guttannen, 1892-93.* "Correspl. Schweizer Aerzte, 1894, No. 4.

STATISTICAL report upon this epidemic. *Michael.*

Baron (Enskirchen).—*The Quinine Treatment of Whooping Cough.* "Berliner Klin. Woch.," 1893, No. 48.

RECOMMENDATION of this treatment. *Michael.*

NOSE AND NASO-PHARYNX.

Baumgarten (Buda-Pesth).—*Double Anterior Nose—Two Cartilaginous Septa and Three Nostrils*. "Rev. Mens. de Laryng.," Jan. 1, 1894.

A MALFORMATION indicated by the title, and reproduced in a photograph.
Joal.

Loeb, H. W.—*Nasal Headaches*. "Transactions of the Missouri State Medical Association," 1893.

THE following are quoted as pointing to a nasal origin in headache: frontal headache, hemicrania starting about the orbit; long-continued headaches; headaches of which successive attacks are similar; those which are increased or originate in acute rhinitis; those associated with obvious disease of the nose or its accessory cavities; and the following are given as the usual nasal conditions: acute inflammations, chronic rhinitis, obstructive lesions, septal deformities, disease of accessory cavities, chronic atrophic rhinitis, especially where crusts are allowed to remain, contact of the septum and middle turbinate.
R. Lake.

Scheinmann (Berlin).—*Habitual Headache as a Prominent Symptom of some Nasal Diseases*. "Berliner Klin. Woch.," 1893, No. 49.

MOST nasal diseases have only the symptom of habitual headache: therefore, both in neurasthenic and hysterical persons local examination of the nose should be undertaken. Severe diseases of the nose and accessory cavities often also present this symptom alone, and by the cure of these nasal disorders the headache is also cured. After cocaineization of the diseased parts the headache disappears also in neurasthenic persons. The most frequent cause is hypertrophic swelling of the turbinates, but the observations of the author prove that empyema of the antrum of Highmore, even combined with phlegmon of the orbit, may be only indicated by headache, and this may be removed by cure of the empyema. The author also relates some cases in which the headache was caused by carious and gummatous processes, and by crests and spines of the nasal septum, and concludes that in cases of headache the nose should be particularly examined. The prognosis of the condition is favourable, because the headache disappears with the cure of the nasal symptoms.

Michael.

Wright, J.—*The Discrepancy between Lesions of the Nose and Throat*. "The Brooklyn Med. Journ.," Jan., 1894.

THE author urges dispassionately to all, the dangers of being led either to overlook the general disease in the local, or of considering the objective lesions of too great relative importance, bringing up a series of illustrative cases showing how nasal lesions of a minor kind can in neurotic persons undoubtedly produce marked reflex disorders, curable by local treatment, together with rational general treatment, and others which show how gross deviations of the septum, almost occluding the nares, may pass unnoticed throughout life, and are only discovered by chance; here giving the advice not to urge operative interference when none is required by the patient. Again, another series is brought forward of "nasal hysteria"

and "the nasal operation habit"; both are well dealt with, the latter being compared to the state of mind found amongst women suffering from uterine disorders. The vaso-motor disturbance set up after opening up a nares previously impervious on one side, is explained by Nature seeking an equilibrium by rendering the two sides alike, and the hypothesis advanced there may be a change in the rarefaction of the intra-nasal air on the previously pervious side after straightening a septum. The author does not recommend the galvano-cautery in hypertrophy of the lingual tonsil, preferring, in great enlargement, removal; in lesser cases, caustics.

R. Lake.

Sims, Parker.—*A Method of Rhinoplasty.* "New York Med. Journ.," Dec. 16, 1893.

THIS is a method for filling the gap left in the nose after operations, especially for cancer, and consists of two parallel horizontal incisions on to the face the same width as the gap, and drawing the flap made of skin and subcutaneous tissue into the wound. Where there is not sufficient room for horizontal flaps the incisions should turn downwards vertically.

R. Lake.

Dunn, J.—*Complete Destruction of the Contents of the Nasal Cavities as a Result of Syphilis.* "New York Med. Journ.," Jan. 20, 1894.

IN this case the contents were entirely destroyed, and the maxillary sinuses were thrown into the general cavity by destruction of their internal walls.

R. Lake.

Farlow, J. W.—*Two Cases of Nasal Tuberculosis.* "New York Med. Journ.," Nov. 4, 1893.

THE first presented an ulceration of the septum and inferior turbinated bone, with a soft vascular outgrowth from the inferior turbinated; the second, a tubercular outgrowth sprang from the anterior part of the septum. Curetting, cautery and lactic acid were the means used to obtain a cure.

R. Lake.

Dunn, J.—*Cured Cases of Atrophic Rhinitis.* "New York Med. Journ.," Dec. 23, 1893.

THIS is a paper written on a case of cured atrophic rhinitis, in which the whole mucous membrane was pitted with minute depressed scars. No microscopical examination was made. The scars were especially numerous at the posterior edge of the septum, at the sites of the plica septi.

R. Lake.

Bennett, O. P.—*Atrophic Rhinitis or Ozena.* "North American Pract.," July, 1892.

A REVIEW of the literature on the subject.

R. Lake.

Gouguenheim and Hétiary.—*Congenital Osseous Obliteration of the Choana.* "Annales des Mal. de l'Oreille, etc.," Jan., 1894.

AFTER a bibliographical study of published cases, the case is related of a girl, fifteen years of age, who had congenital occlusion of the left choanæ. The symptoms resembled those of adenoid vegetations. The diagnosis

was made by palpation and posterior rhinoscopy. These congenital malformations have real gravity only in the new born. Treatment varies according to the thickness of the obliterating lamina. In the present case the patient was operated upon by Dr. Gellé at the Lariboisière Hospital, who, after several fruitless attempts with the galvano-cautery, pierced the choanæ with a drill, and made a perforation at a neighbouring part of the septum. *Joal.*

Dreyfuss (Strasburg).—*Contribution to the Study of Nasal Suppurations.* "Arch. Internat. de Laryngol.," Dec., 1893.

A CASE of purulent periostitis of the turbinateds consecutive to caries of the second molar. *Joal.*

Onodi (Buda-Pesth).—*Sarcoma of the Nasal Fosse.* "Rev. Mens. de Laryng.," Jan. 1, 1894.

A VERY interesting case, from the fact that the [malignant tumour of sarcomatous nature had been preceded by benign polypi of the nose. The malignant transformation occurred only after ablation of the polypi. *Joal.*

Luc (Paris).—*Note on a rare Case of Nasal Myxoma.* "Arch. Internat. de Laryngol.," Dec., 1893.

SEE the report of the Paris Laryngological Society. *Joal.*

Garel and Collet (Lyons).—*Contribution to the Study of Tumours of the Nasal Septum.* "Ann. des Mal. de l'Oreille, etc.," Nov., 1893.

THE authors record, with microscopic examinations, fifteen cases of tumours situated on the nasal septum—angioma, lupus, tuberculosis, papilloma, and myxangiomatous polypi. Two characters, they remark, appear to distinguish the histological examination—(1) great vascularity of the growths; (2) their almost constant situation upon the anterior portions of the septum, upon the cartilaginous septum, as is shown by the pavement epithelium which ordinarily covers them. *Joal.*

Cobb, F. C.—*A Case of Angioma of the Nasal Septum.* "Boston Med. and Surg. Journ.," Nov. 23, 1893.

THE patient's symptoms were thick discharge, sneezing, and epistaxis on right side for six months. A small bilobed pedunculated growth sprang from the junction of the skin and the mucous membrane: removed by cold snare. Examination proved it an angioma. *R. Lake.*

Schröder (Berlin).—*Case of so-called Idiopathic Acute Perichondritis of the Nasal Septum.* "Berliner Klin. Woch.," 1893, No. 46.

A PATIENT, eighteen years old, was attacked four weeks previously with fever and headache. Both halves of the septum of the nose were red and swollen. Incision on both sides led to the discharge of putrid pus. Improvement followed. A slight depression of the nose can now be seen; both sides of the septum are swollen, and pus can be expressed. The examination with the probe showed the quadrangular cartilage to be destroyed, and the inner and perpendicular lamina to be rough. New

incisions were made, and the parts were extracted, and iodoform gauze was applied. Under a careful after-treatment cure resulted after a time with less malformation.

Michael.

Lublinsky (Berlin).—*Idiopathic Perichondritis of the Nasal Septum*. "Berliner Klin. Woch.," 1893, No. 46.

A PATIENT, sixty years old, slightly diabetic, was attacked with obstruction of the nose, pains and swelling of the upper lip. Examination showed a red fluctuating tumour on both sides of the septum. Incision was made, and there was a discharge of pus. The probe showed a defect in the cartilaginous septum. Tamponing was employed, and cure resulted.

Michael.

Mettenheimer (Schwerin).—*Exostosis of the Nasal Septum cured by Electrolysis*. "Jahrb. für Kinderheilk.," Band 37, Heft 1.

THE title indicates the contents of the paper.

Michael.

Strachan (Jamaica).—*Bony Overgrowths and Exostoses in the West Indian Negro*. "Brit. Med. Journ.," Jan. 27, 1894.

THESE consisted of bony masses on each side of the bridge of the nose. They were congenital, and grew with the child: smooth, hard, and of the size and shape of an elongated pigeon's egg, and springing from the nasal process of the superior maxilla and nasal bones. There was no pedicle or constriction. They somewhat encroached on the anterior nares. They were removed by chisel, and proved to be chiefly overgrowths of the superior maxilla (nasal process), and, to a less degree, of the nasal bone, and consisted of compact bony tissue externally, with a cancellous core. The author points out that Lamprey ("Brit. Med. Journ.," Dec. 10, 1887) reports three cases of bony growth of the infra-orbital ridge, occurring in negroes of West Africa, and regards them as a racial peculiarity.

Wm. Robertson.

Cozzolino (Naples).—*New Antiseptic Hemostatic Medication in the Spontaneous and Surgical Hemorrhages of the Nasal Septum, of the Turbinates, and of the Auricular Cavity*. "Annal. des Mal. de l'Oreille, etc.," Nov., 1893.

THE author recommends the employment of a solution of trichloroacetic acid, one in thirty or forty, applied to the part of the septum whence the hæmorrhage proceeds, in cases of epistaxis.

Joal.

Cleaver (Sheffield).—*Ergotin in Epistaxis*. "Brit. Med. Journ.," Dec. 9, 1893.

IN this case a freshly prepared five-grains "inject. ergotini hyperderm." was eminently successful.

Wm. Robertson.

Cadwell, G. W.—*Transillumination of the Accessory Sinuses of the Nose*. "New York Med. Journ.," Nov. 4, 1893.

Turbid fluid pus and polypoid degeneration of mucosa and solid tumours give shade; large mucous polypus concentrates light and increases brilliancy; intra-nasal inspection aids diagnosis. The ethmoidal cells are illuminated by a lamp pressed between the eyeball and inner orbital wall; the frontal by a lamp over the sinus.

R. Lake.

Burger (Amsterdam).—*The Diagnosis of Suppuration of the Maxillary Sinus.*
 "Rev. Mens. de Laryngol.," Jan. 1, 1894.

FROM facts observed, it results that in every case of unilateral rhinitis is necessary to think of the possibility of a suppuration of the maxillary sinus of the other side. The patient lying on the healthy side at night, the pus flows into the nose, accumulates near the healthy choana, and the inflammation is propagated to this side. The author attaches a great diagnostic value to the illumination of the eye and to the signs which it furnishes—red spots of the pupil and subjective luminous sensation, as Davidsohn has already described—but it is the latter symptom which has the greatest importance. *Joal.*

Cadwell, G. W.—*Diseases of the Accessory Cavities of the Nose and an Improved Method of Treatment for Suppuration of the Maxillary Antrum.*
 "New York Med. Journ.," Nov. 4, 1894.

THE one absolute proof of disease of the sinus is the detection of escape of pus. This may be done by inspection and irrigation and transillumination. The method of operating on the maxillary sinus is a large temporary opening in canine fossa, and a counter opening for drainage in the inferior meatus. *R. Lake.*

Lerwoylz (Paris).—*The Treatment of Sinusitis at Vienna.* "Annales des Mal. de l'Oreille, etc.," Jan., 1894.

A REVIEW of the various methods of treatment employed by Austrian surgeons. *Joal.*

Bates, W. H.—*A New Method of Treatment of Chronic Naso-Pharyngeal Catarrh.*
 "Med. News," Jan. 20, 1894.

THE treatment consists of syringing down the nasal duct three times weekly, and the best results were obtained by "sweet oil." *R. Lake.*

Farlow, J. W.—*Hypertrophy in the Post-Nasal Space, especially after Childhood.*
 "Boston Med. and Surg. Journ.," Jan. 18, 1894.

THE author insists on the frequent occurrence of this hypertrophy, and says that, especially by posterior rhinoscopy, one is apt to under-estimate it. Snoring and mouth-breathing are by no means constant symptoms. He also considers it a frequently unrecognized cause of nasal and post-nasal catarrh. *R. Lake.*

Dansac.—*Adenoid Vegetations.* "Ann. des Mal. de l'Oreille, etc.," Oct. and Nov., 1893.

THE author classifies adenoid vegetations as scrofulous, lymphatic, and syphilitic: the first being observed in children, the two latter in adults. He studies their distinctive characters, naked eye and microscopic. Malformations of the lower jaw, of the vault of the palate, and of the septum, consecutive to vegetations, are not due, as generally thought, to the size of the tumours, but to disturbance of the hæmatopoietic function. The diagnosis is made especially from the antecedents and examination of the blood. Operation is indicated in the scrofulous forms when general treatment has not succeeded. In the lymphatic and syphilitic forms it may be deferred. *Joal.*

MOUTH, TONGUE, PHARYNX, &c.

Couetoux (Nantes).—*Dribbling in the Child and Adult*. "Annal. des Mal. de l'Oreille, etc.," Dec., 1893.

By dribbling the author means the flow of salivary fluid from the mouth. This symptom is met with in the course of adenoid vegetations, as often in the child as in the adult, and has for cause only nasal occlusion. By this occlusion the arch of the palate is applied to the posterior pharyngeal wall; during deglutition the palate has to be detached by an effort which causes fatigue to the patient, which ends in the saliva flowing out along the commissures of the mouth. Along with this is generally observed a certain difficulty of deglutition. This view is supported by many observations recorded in this paper. *Joul.*

Shimwell, B. T.—*The Treatment of Salivary Fistula*. "Medical Bulletin," Nov., 1893.

IN the treatment of salivary fistula the mucous membrane is incised from the first bicuspid to the last molar, and the skin and buccinator from the fistula to the bicuspid; the skin is then sewn up. Rest by division of the buccinator is the feature of this treatment. *R. Lake*

Hulke, J. W. (London).—*Three Somewhat Unusual Cases of Salivary Calculi, with Remarks*. "Lancet," Jan. 6, 1894.

THE author attributes the greater frequency of calculus in connection with the submaxillary gland, as compared with the parotid, to the presence of mucin in the secretion of the former, and he thinks it probable that most salivary calculi are produced by deposition of salivary salts round a minute foreign body. In one case, readily diagnosed, in which the patient feared she had cancer, the calculus extruded itself from the duct through a small opening in the mucosa in the interval between the examination and the intended operation. In the second case the patient had the same apprehension. The calculus was detected by means of a probe passed into a minute opening in the mucous membrane, as far back as the last molar tooth. The third case was characterized by the swelling being of such a size as to protrude externally, and to interfere with swallowing and breathing. During the operation for the removal of the tumour by external incision, it was found to be a calculus imbedded in a fibrous capsule. After intervals of six and of seven years there was a return, with abscess formation. In such a case the author suggests removal of the submaxillary gland. *Dundas Grant.*

Naegeli.—*Curious Impediment of Swallowing*. "Correspbl. für Schweizer Aerzte," 1894, No. 2.

THE author being called to a woman, sixty-three years old, found her crying and unable to speak distinctly. On movement she showed that she could neither speak nor swallow. The first impression given was

that it was an attack of apoplexy, but as the author ordered her to open the mouth he saw that a sharp root of a tooth had perforated the tongue, and that the latter was fixed as if it had been nailed. He liberated the tongue and extracted the root.

Michael.

Dreschfeld (Manchester).—*Osteoma of the Superior Maxilla; Epithelioma of the Tongue.* "Brit. Med. Journ.," Jan. 15, 1894.

THE osteoma, which extended over the whole of the superior maxilla, was said to have arisen after a fall from a ladder twenty-three years before. At first it developed rapidly, and afterwards became stationary. The orbit and nasal cavities were free from pressure effects; the palate and alveolar border on the right side were, however, displaced inwards. He was operated on for the epithelioma, and recovered.

Wm. Robertson.

Bryan, J. H.—*Some Manifestations of Syphilis of the Upper Air Passages.* "New York Med. Journ.," Dec. 16, 1893.

THE first was a case of almost complete stenosis, nearly demanding intubation, and recovered under appropriate treatment; the second a case of abscess of the tonsil, with other lesions, all tertiary; the last a late case of congenital disease, commencing at the age of nine years. The eldest child was imbecile, the second healthy, the third was the one referred to here. There was ulceration of palate, rhinitis, ulceration of tonsil, destruction of half the epiglottis, and thickening of rimaglottis.

R. Luke.

Allen, H.—*Remarks on Congenital Defects of the Face, and a Specimen of a rare form of Cleft Palate.* "New York Med. Journ.," Dec. 23, 1893.

THE skull shown had a median defect of the palate, with want of development of the left side of the face; the septum was much distorted, forming a depression in the corresponding inferior turbinated bone for its reception. This latter was used as an argument against the theory of all septal deviations being traumatic in origin.

R. Luke.

Browne, Lennox (London).—*Hæmorrhage following Tonsillotomy; its Causes and Appropriate Treatment.* "Lancet," Jan. 20, 1894.

THE author refers to the only three cases he has seen in which this was serious. In one a persistent oozing was caused by eating toast, but was checked by styptics and pressure. In another it arose while the patient was cleaning doorsteps on the third day after the operation; and in the third the hæmorrhage was arrested by the employment of styptic colloid with pressure, the tannic and gallic acid gargle having failed. He advises careful instruction of patients as to their dietary and exercise during several days after the operation. [The printed directions given to all patients operated on at the Central London Throat and Ear Hospital embody the necessary instructions.]

Dundas Grant.

De Santi, P. R. W. (London).—*Hæmorrhage following Tonsillotomy; its Causes and Appropriate Treatment.* "Lancet," Jan. 13, 1894.

THE accessible references to the recorded cases are given, and several are narrated, three, hitherto unpublished, being of considerable interest.

The writer concludes (1) that fatal hæmorrhage after tonsillotomy is almost unknown; (2) that dangerous hæmorrhage is very rare; (3) that severe hæmorrhage requiring styptics, direct pressure, &c., is very far from common; and (4) that moderate hæmorrhage is very fairly common, and generally ceases spontaneously; also that the bleeding is almost entirely confined to adults, and that in many of the recorded cases it has followed the use of the bistoury. The following circumstances would incline him to select some other means than a cutting operation:—(1) cases of hæmophilia; (2) cases with apparent or suspected abnormalities of the vessels; (3) flat and deeply situated tonsils, and in adults rather than in children. He refers to Dr. Semon's preference for the galvano-cautery in adults, and in all cases in which the tonsils are concealed by the palatine arches. (He makes no reference to the cold wire *écraseur* recommended and used by Mr. Lennox Browne in very large tonsils in adults.) As regards treatment, he would commence with quiet; then the gallic and tannic mixture (one part of gallic to three of tannic acid); then examination of the part, and torsion or cautery to any discoverable bleeding-point, or pressure on the general surface of the tonsil, pressure on the common carotid for a short time, and perhaps ligature of the tonsillar stump with the help of a tenaculum. If necessary to ligature a carotid artery, the external should be selected, and Mr. Treves' method of temporary occlusion may be practised by means of a loose catgut ligature, on which traction can be exercised. The cases in which the ascending palatine artery comes off from the internal carotid are rare. The surgeon, when removing tonsils (Mackenzie's tonsillotome is the best instrument), need not expect, but should be prepared to deal with hæmorrhage of even an alarming nature. *Dundas Grant.*

Solis-Cohen, J.—*Sarcoma of Tonsil; Evulsion through the Mouth.* "Med. News," Jan. 27, 1894.

THE patient, a spinster, fifty-eight years of age, had had the growth for three years and a half, and it had increased rapidly for six months. The mass, which was the size of a small hen's egg, extended upwards to the hard palate. It was removed, under cocaine anæsthesia, by dividing the soft palate with the galvano-cautery knife, and evulsion by means of the fingers and forceps. There was no glandular enlargement. *R. Lake.*

Klingel (Elberfeld).—*Phlegmonous Angina with Formation of an Abscess in the Plica Salpingo Pharyngea.* "Münchener Med. Woch.," 1893, No. 50.

A PATIENT, thirty-five years old, suffered from fever and difficulty of swallowing for some days. Examination showed on the plica salpingo pharyngea a red tumour the size of an egg. Incision was followed by discharge of pus. Cure resulted. *Michael.*

Washbowne and **Goodall** (London).—*A Case of Membranous Inflammation of Throat during Scarlet Fever.* "Brit. Med. Journ.," Jan. 28, 1894.

THIS condition of the throat was accompanied by a rash and subsequent desquamation. There were no diphtheria bacilli found. The membrane was tough and thick. The conclusions arrived at by the authors were that

a membranous inflammation of the throat, occurring during the acute stage of scarlet fever, was generally not true diphtheria, but a similar condition occurring during convalescence was true diphtheria. These conclusions were in accord with the bacteriological examinations made by several investigators abroad, and by Klein in this country. Dr. Goodall pointed out that it was important to diagnose these cases, since, if they were diphtheritic, the placing of them in a ward of convalescent scarlatinal patients would give diphtheria to many of them. The same author remarked that the membranous throat of scarlet fever did not spread to the larynx, and that once it had disappeared it did not recur as in true diphtheria.

Wm. Robertson.

Fraenkel, A. (Berlin).—*On Traction Diverticula of the Œsophagus.* "Deutsche Med. Woch.," 1893, No. 52.

DEMONSTRATION of three specimens of traction diverticula. The first was the case of a patient, fifty-four years old, who died after a few days' illness from gangrene of the lungs. The *post-mortem* examination showed a perforated diverticulum of the œsophagus. The second case was that of a patient who died from apoplexy. During the last days of her life she always had cough after eating and drinking. The third case was that of a patient, thirty-one years old, who died from gangrene of the lungs. At the region of the bifurcation there was a little diverticulum, with a perforation communicating with the right bronchus.

Michael.

Hamilton, W. D.—*Œsophagotomy for Removal of a Eucrye Nut.* "Med. News," Jan. 27, 1894.

THE nut was removed from an asylum patient, twelve hours after its impaction, by left lateral œsophagotomy. The wound in the gullet was closed immediately, and alimentation was carried on by means of the œsophageal tube for three weeks. The nut was one inch in its greatest diameter.

R. Lake.

Polikier.—*Removal of Foreign Bodies from the Œsophagus.* "Med. Chir. Centralbl.," 1892, No. 22

IF the foreign body, specially a piece of money, is situated in the upper portion of the œsophagus the author recommends the employment of compression of the region between the trachea and left sterno-cleido-mastoideus. If the foreign body is movable the pharynx should be irritated by the hand to excite vomiting movements, and the foreign body will be ejected.

Michael.

LARYNX.

Emerich, Navratil (Budapest).—*Experiments on Animals upon Innervation of the Larynx and the Accessory Nerve*. "Ungarisches Archiv für Medizin," 1893.

THE author repeats the results of experiments published by him in 1871. The muscles of closing, tension, and opening of the glottis are innervated by the nervus laryngeus inferior; the sensory fibres arise from the nervus aryngæus superior. The nervus accessorius Willisii is without influence upon laryngeal innervation. He adds the results of sixteen experiments performed latterly which have confirmed his views, especially that the nervus accessorius Willisii is not a laryngeal nerve, contrary to Claud Bernard's views.

Michael.

Scheir, Max (Berlin).—*The Inverse Action of the Vocal Cords*. "Arch. de Laryngol.," Dec., 1893.

THE author understands by this term spasm, which may be phonatory or inspiratory, of the vocal cords. He publishes the observation of a case from Koite's clinic, viz., that of a woman, forty-three years of age, attacked by intense dyspnœa from glottic spasm. He studies the pathology of the condition and attributes it to hysteria.

Joal.

Curtis, H. H.—*The Effects on the Vocal Cords of Improper Methods in Singing*. "New York Med. Journ.," Jan. 20, 1894.

THE author observed that singers trained with daily exercises on the single vowel "o" had the cords striated, frequently congested anteriorly, and frequently a nodule about the centre of the free edge on either cord; in others, trained chiefly with daily exercises on the vowel "a," in which school *coup de glotte* was practised, the middle third of the cords bulged slightly. Then follows a review of the history and methods of voice production, chiefly derived from Joal, and a short account of the author's method of treating the above cases, which consists of the inferior costal respiration, and maintaining a high chest, singing the word "ma" at regular intervals during the day, taking a medium C, and depressing the chin almost to the sternum.

R. Lake.

Porcher, W. Peyre.—*A Case of Complete Glottic Spasm in an Adult, followed by Unconsciousness and Prolonged Drowsiness*. "New York Med. Journ.," Dec. 23, 1893.

THE patient, a maiden lady aged fifty-two, suffered after taking some hot coffee with a peculiar feeling of giddiness, rushed to the window, and fell back unconscious; prolonged drowsiness and torpidity of the bowels followed. Strychnine, saline aperients and cauterization of somewhat enlarged tonsils effected a complete cure.

R. Lake.

Scheppegrell, W.—*Non-Malignant Tumours of the Larynx*. "New Orleans Med. and Surg. Journ.," Nov., 1893.

A REVIEW of a large part of the literature on the subject (illustrated), and having four original cases in addition—one, an angioma, which was

situated on the upper surface of the left cord, and was destroyed by the electro-cautery; another, a fibroma, containing a large number of cavernous vessels, which was removed by the snare; the third was a cystic tumour of the lingual surface of the epiglottis, and was treated by incision and cauterization of the sac; the fourth, which was not treated, was a case of multiple papillomata.

R. Lake.

Lincoln, R. P.—*Recurrence of a Laryngeal Growth at a New Site.* "New York Med. Journ."

THE growth was a papilloma—details not given.

R. Lake.

Kronlein.—*Carcinoma.* Gesellschaft der Aerzte in Zurich, Meeting, Nov. 11, 1893.

THE author showed a patient in whom he had extirpated the left side of the larynx for carcinoma. Cure resulted. The same author reported a case of a patient, four years old, affected with diphtheria and treated by intubation. The tube could not be removed for four months; every attempt was followed by asphyxia. Tracheotomy was performed, but the decanulment had been up to now impossible in spite of all endeavours with different canulas and surgical treatment.

MURALT also had observed such cases, and believed that such events will occur if the tube is too large for the larynx.

LUNING asked if there was no secondary perichondritis. He had observed such cases following typhoid fever and variola.

Michael.

Herzfeld (Berlin).—*Primary Erysipelas of the Larynx.* "Virchow's Archiv," Band 133, Heft 1.

A PATIENT, twenty-five years old, was attacked suddenly with difficulty in swallowing, shivering, and pains in the neck, followed some days later by attacks of suffocation. The laryngoscope showed cedema of the epiglottis, ary-epiglottic folds and arytenoid cartilages, and ulceration of the epiglottis. Ice treatment was followed by cure. The bacteriological examination showed streptococci and staphylococcus pyogenes aureus to be present.

Michael.

Danet (Paris).—*Laryngeal Hemorrhages.* Thèse, Paris, 1894.

AN excellent monograph, in which the author reviews the facts and theories of the subject, recording new observations contributed by Poye and Fauvel.

Joal.

Woodward, J. H.—*Tubercle Bacilli and the Diagnosis of Tuberculosis of the Air Passages.* "New York Med. Journ.," Dec. 16, 1893.

TWO cases are quoted in which tubercle bacilli were found in the sputum, and which, after treatment with iodides, recovered without any sign of tuberculosis; from these two cases he casts doubt on the value of microscopical diagnosis in these cases.

R. Lake.

Ball, J. M.—*Pathology of Laryngeal Tuberculosis.* "Journ. of the Amer. Med. Assoc.," Dec. 9, 1893.

DEALS with the question of the process of invasion of the laryngeal tissues, and whilst not denying *in toto* invasion through the intact mucous

membrane, brings forward strong arguments in favour of invasion from within, as cases with scarcely a bacillus in the sputum, but extensive tubercular laryngeal invasion; cases of extensive and rapid pulmonary tuberculosis, without laryngeal complications; the correspondence of side in lung and laryngeal trouble tend to prove blood and lymph carriage; also the presence of a stratum of healthy tissue between the mucous membrane and the diseased structures. *R. Lake.*

Dansac.—*Lesions of the Nerves in Tubercular Arytenoiditis; Tubercular Laryngeal Pseudo-Neuroma.* "Annal. des Mal. de l'Oreille, etc.," Dec., 1893.

THE embryonal tubercular arytenoid infiltration is always accompanied, in cases of dysphagia and dyspnœa with hyperplasic nervous lesions, with neo-formations of the hypertrophied nerves and perineurotic sclerosis.

Arytenoiditis ought, therefore, to be considered as a bacillary and tubercular pseudo-neuroma. The dyspnœic phenomena, formerly attributed to glottic œdema, should be referred to this hyperplasia of the sensory nerves and their terminations, and are rather of a spasmodic character. *Joal.*

Rueda (Madrid).—*Syphilitic Crico-Arytenoid Arthritis.* "Rev. Mens. de Laryng.," Jan. 15, 1894.

PRIMARY arthritis cured by mercury and iodide treatment. *Joal.*

O'Dwyer, J. P.—*Intubation in Laryngeal Stenosis caused by Diphtheria.* "American Lancet."

A REPORT on sixteen cases, with a recovery of thirty-seven and a half per cent. In fatal cases, average life after intubation was two and a half days; in successful cases the tube was in four days. *R. Lake.*

Bleyer, J. M.—*Eight Cases of Syphilitic Stenosis of the Larynx, caused by Web Formation, operated by my method of combined Tubage and the Knife.* "Journ. of the American Medical Association," Nov. 25, 1893.

THE operation consists in the free division of the occluding cicatricial tissues by means of Lennox Browne's cutting dilator and the immediate introduction of a large hard rubber intubation tube, which is worn for at least two weeks, only being removed to be cleaned. Excellent results follow. *R. Lake.*

Lefferts, G. M.—*Intubation in the Adult.* "New York Med. Journ.," Dec. 9, 1893.

HIS views of its use in acute and chronic syphilis are unaltered; he doubts the correctness of the professed cure of abductor paralysis by its aid; it is useful in laryngeal dyspnœa dependent upon abductor immobility of vocal cords, due to ankylosis, in fracture of larynx, chronic stenosis, acute tracheal stenosis, in acute thyroiditis, in acute inflammatory affections of larynx especially subglottic-acute perichondritis of the cricoid, and also in cases of a small foreign body in the trachea, which can pass up the lumen of the tube. *R. Lake.*

Thorner, Max.—*The Management of Foreign Bodies in the Air Passages.* "Med. Rec.," Aug. 26, 1893.

TWO cases are first quoted; one a man who inhaled a green pea and coughed it up and out thirty-six hours later; the second, a girl who had some time previously inhaled a piece of bone. She was cyanosed and unconscious when seen, but the laryngoscope revealed a white body below the cords; high tracheotomy was done, and a few days after the bone was removed. Tracheotomy is advocated when the foreign body cannot be removed by endo-laryngeal operation, and also in cases where there is strong presumptive evidence of the presence of a foreign body, and also in cases where it is impacted in a bronchus. *R. Lake.*

Bruns, F. (Tübingen).—*Congenital Diaphragm of the Larynx.* "Beiträge für Klin. Chirurgie," Band 9.

A GIRL, nineteen years old, born aphonic, had attacks of dyspnoea on quick movement. The laryngoscope showed a diaphragm beginning at the anterior commissure, and filling the greater part of the larynx. It consisted of resistant tissue. The malformation must be explained as being due to an agglutination of the air tube persisting from early embryonic life. The attempt at destruction of the membrane was followed by an attack of suffocation, so that tracheotomy had to be performed. By treatment with dilators for one and a half years the patient was cured. The canula could afterwards be removed. Respiration and voice are now normal. *Michael.*

Crick (Molenbeck St. Jean).—*Transverse Wound of the Neck, implicating the whole of the Trachea; Suture of the Trachea; Cure.* "Rev. Mens. de Laryngol.," Dec. 15, 1893.

THE title indicates the interesting points of this case. *Joal.*

Selter.—*Ulcerations of the Trachea and Bronchus produced by Pressure of Aneurisms.* "Virchow's Archiv," Band 133, Heft 1.

PATHOLOGICO-ANATOMICAL description of five specimens from patients who died from aneurisms of the aorta or innominate. In spite of the circumstance that such ulcers are often found, death is only in rare cases produced by perforation of the aneurism into the bronchi, mostly occurring from other complications. *Michael.*

Kohl (Chur).—*Retention of Secretions in the Trachea.* "Correspbl. für Schweizer Aerzte," 1894, No. 2.

THE author does not believe, as Hagenbach states, that retention of secretion can lead to impossibility of removal of the tracheal canula; the cause of this impossibility always lies in the still persisting stenosis of the larynx. It is true that sometimes when the canula is removed before the stenosis disappears secretion closes the tracheal opening, and prevents children from respiring through it. In such cases the opening should be closed by gauze, so that the secretion will not dry. *Michael.*

THYROID GLAND, NECK, &c.

Tait, D.—*A Rare Form of Cyst of the Thyroid.* "Pacific Med. Journ.," Jan., 1894.

THE tumour, of twelve years' growth, occurred in a male; it extended from the hyoid to the sternum, and displaced the larynx to the right. The whole left and part of the right lobe were removed. There was a central cyst, surrounded by gland tissue to an extent of one inch in some parts. The pulse before operation was one hundred, and since has been eighty per minute. R. Lake.

Schotten (Cassel).—*Myxœdema and its Cure by Internal Use of Thyroid Extract.* "Münchener Med. Woch.," 1893, Nos. 51 and 52.

THE author has had excellent results in the treatment of myxœdema by the internal use of thyroid gland. He does not believe that a perfect cure can be obtained by this treatment, but only that the symptoms of the disease can be removed. Cases in which subcutaneous injections of extract of the gland have been given, and those in which the gland itself has been implanted, showed recurrences. He therefore recommends the internal use of the gland extract as the most simple, and the repetition of the treatment if recurrences occur. Michael.

Hopmann (Köln).—*Operative Myxœdema of Great Intensity and Unusual Duration.* "Deutsche Med. Woch.," 1893, No. 51.

THE patient, twenty-five years old, consulted the author in 1879 for dyspnoea and difficulty of swallowing, caused by a large goitre. In 1881 total extirpation of the goitre was performed. The extirpated tumour weighed 620 grammes. At first, after the operation, the patient was quite well. Two years later there arose weakness in the limbs, swelling of the face, and anæmia; the lips became livid, and there was an impossibility of performing hard work. Treatment with iron was without effect. The continuation of the case is described by Leichtenstern. (See his paper.) Michael.

Leichtenstern (Köln).—*Case of Operative Myxœdema successfully treated by the Internal and Subcutaneous Use of Extract of Thyroid Gland.* "Deutsche Med. Woch.," 1893, Nos. 49, 50, and 51.

THE case operated upon by Hopmann (see the report of his paper—"Deutsche Med. Woch.," No. 51) came ten years later to the author. He believed that the symptoms of myxœdema had arisen earlier, as stated by Hopmann half a year after the extirpation. The patient now presented a complete picture of myxœdema, which was illustrated by a photograph of the patient. The intellect was diminished, and she was apathetic; auscultation and percussion gave normal results; examination of the blood showed great leucocytosis. By subcutaneous injection of an extract of thyroid gland and by its internal use the patient has been

cured in a short time. A second photograph shows the excellent result, and presents a nearly normal condition of the patient. The extensive historical and physiological references must be read in the original.

Michael.

EARS.

Cozzolino (Naples).—*A New and very Effective Remedy for Local Infections, and especially Pyogenic Processes in the Ear, the Nose, and the Throat.* "Annales des Maladies de l'Oreille," Nov., 1893.

THE author extols the effects of microcidine, a compound of naphthol β and caustic soda. It is an odourless substance, soluble in alcohol. According to Berlioz, it is ten times more antiseptic than phenol, and twenty times more than boric acid. He has used it with success in a three or four per cent. solution in aural suppuration. It is equally useful in a one or two per cent. solution in diseases of the nose, as well as in common tonsillitis, and in the scarlatinal diphtheritic form. *Joal.*

Courtade (Paris).—*New Mode of Treatment for Adhesions in the External Meatus by Means of "Tubage."* "Annales des Maladies de l'Oreille," Dec., 1893.

BY tubage—intubation—the author means the introduction of an india-rubber tube to act at the same time as drain and permanent dilator. He has employed it with success in a case of membranous diaphragm in the meatus and in adhesions in that passage. *Joal.*

Bidwell (London).—*Rodent Ulcer.* "Brit. Med. Journ.," Dec. 9, 1893.

THIS the author showed arose in a mole situated in front of the right ear. The origin was unusual—*i.e.*, from a mole which contains many sebaceous glands. In its histology it was a typical carcinoma. Golding Bird referred to the confusion existing as to the histology and diagnosis of "rodent ulcer"—a term which is only to be regarded from a clinical point of view. Any ulcer between the brow and mouth was termed such. Secondary infection of the lymphatic glands was always absent.

Wm. Robertson.

Heiman (Warsaw).—*Artificial Diseases of the Ear.* "Annales des Maladies de l'Oreille," Dec., 1893.

THERE are three methods of producing these (for purposes of malingering, etc.) :—(1) To introduce into the external meatus non-irritant bodies, such as cotton-wool, grains of corn, or leaves ; (2) to apply irritant materials to produce inflammation of the external meatus and tympanum, such as pepper, camphor, turpentine or croton oil ; (3) to destroy the tympanic membrane by perforating it, and then pouring in some caustic liquid, such as carbolic, sulphuric or nitric acid.

Among conscripts the first two kinds of fraud occur rarely ; formerly the third was pretty frequent in Poland.

The diagnosis depends on the age of the patient, the circumstances,

the unilateral nature of the lesion and its acuteness. In addition, the membrane is grey or reddish, the perforation is in the antero-inferior or postero-superior part; suppuration is only abundant at the moment of separation of the eschar. Hearing-power is little affected. The external meatus is liable to obliteration. *Joul.*

Hutton (Staffordshire).—*Intra-Cranial Complications of Chronic Otitis Media.* "Brit. Med. Journ.," Jan. 6, 1894.

THIS refers to an uncompleted case, where a tempero-sphenoidal abscess developed with the usual symptoms and was trephined, with the result that the patient began to improve. There was necrosis of the upper wall of the tympanum, but no mastoid implication. There was optic neuritis. Very foetid pus was found an inch from the surface. *Wm. Robertson.*

Balance (London).—*Thromboses of the Lateral Sinus.* "Brit. Med. Journ.," Dec. 9, 1893.

THE typical symptoms of lateral sinus pyæmia of eight days' standing were present. He was drowsy, temperature 105·5. There was foetid otorrhœa and a swelling over the upper part of the internal jugular vein in the neck and over the mastoid process. On operation the petrous and mastoid bones were found carious. The sinus presented no evidence of thrombosis. The vein was exposed below the parotid gland, and tied just below where it was thrombosed. [The appearance of the thrombosed vein is not given.—W.R.] A free incision into the sinus discovered no thrombosis, but free bleeding occurred. Recovery. *Wm. Robertson.*

Ménière (Paris).—*Shot Wound in the Right Ear.* "Arch. Internat. de Laryngol.," Dec., 1893.

SEE the report of the Paris Society of Laryngology. *Joul.*

Starr, M. A.—*Traumatic Deafness.* "New York Med. Journ.," Jan. 20, 1894.

THE patient became totally deaf on the right side after a kick. A faradic current was passed through the ear; the points of contact and strength of current are not mentioned, nor is the length of time stated which had elapsed between the injury and treatment. Hearing was restored—watch six inches—after the first application and severe tinnitus was removed. The hearing eventually became normal. *R. Lake.*

Jack, F. L.—*Further Observations on Removal of the Stapes.* "Boston Med. and Surg. Journ.," Dec. 14, 1893.

THE author brings another series of thirty-two cases to add to his original sixteen. His summary is: (1) The best cases for operation are those of "suppuration and hyperæmic inflammation," where the stapes is fixed by scar tissue; cases of "otitis media chronica insidiosa" are not suitable. (2) The filling of the fenestra ovalis by a thin web is not detrimental to hearing. (3) Tinnitus and aural vertigo are sometimes improved, and the risk of setting up vertigo small. (4) The voice perception is improved out of proportion to the others. (5) Hæmorrhage into labyrinth, if it occurs, causes failure of operation. (6) The stapes, if carious, should always be removed. *R. Lake.*

Gellé (Paris).—*A Physiological Point in connection with the Stapes.* "Arch. Internat. de Laryng.," Dec., 1893.

CERTAIN physiologists admit a movement of the foot-plate of the stapes like that of a shutter, that is to say, one extremity of the oval moving in and out, being fixed (as by a hinge); others believe in a see-saw movement on a short axis. Gellé, from his experiments on animals and on the cadaver, has been led to admit that there is a simple sliding movement of the bone, in its frame, inwards and outwards, under the action of pressure, within the limits stated by Helmholtz. *Joal.*

Gellé (Paris).—*On the Bony Covering of the Facial Nerve in the Ear and its Lesions.* "Annales des Maladies de l'Oreille," Jan., 1894.

THE author looks on this as the partition separating the tympanum from the mastoid cavity, the layer of bone which at the same time is the posterior wall of the external meatus and of the tympanum.

After a minute study of the descriptive anatomy of the region, Gellé shows that the opening of the antrum cannot be of sufficient use unless it is made through the mastoid process, as the bony covering of the facial nerve constitutes a partition between it and the tympanum.

Opening up the attic is not sufficient in diseases of the antrum, because the bony covering of the nerve rises much higher than the frame of the tympanic membrane. Hence the idea of uniting in one operation the opening of the antrum, of the attic and of the mastoid cells. *Joal.*

Cox, F.—*Case of Chronic Tympanic Disease, with marked Irritability to Treatment.* "Med. Chron.," Feb., 1894.

THE patient had perforations of both membranes, and an adhesion of the left to the meatal wall. He suffered from an attack of boils all over the body after taking two hundred and forty grains of iodide of potash and seventy-two of the bromide in seventeen days, and an inhalation of tr. benzoin co. blistered his lip. An acute attack of otitis came on, lasting four days, during which time he heard well, the deafness recurring with the cessation of the otorrhœa. *R. Lake.*

Maurel (Paris).—*Trephining the Mastoid Apophysis: Secondary Union of the Wound.* "Rev. Mens. de Laryng.," Jan. 15, 1894.

A CLINICAL lecture given by Gruber, of Vienna, and reported by the author. He says that the method seems to be indicated (1) in cases where the operation has been only an exploratory intervention, and when from special circumstances union has not been obtained immediately after operation; (2) in cases where the local and general symptoms indicate that it is no longer necessary to keep open the operatory wound. There is a contra-indication in cases where the operatory wound communicates with a neighbouring purulent nucleus. *Joal.*

REVIEW.

Wright's Improved Surgeon's and Consultant's Visiting List. Wright and Co., Bristol.

THIS is a very neat and handy visiting list for medical men in general practice, but scarcely for consultants, who would hardly buy the book for the small space allotted to them—room for less than three hundred patients per annum: the obstetric calendar is neatly arranged, and the short lists of doses, poisons, weights and measures, &c., are handy; there is, however, a distinct relationship to the list brought out by F. J. Rebman a year or two since, in the form adopted for getting the whole month with one list of names, but the shape of the one under consideration is far superior.

ASSOCIATION MEETINGS.

PROCEEDINGS OF THE LARYNGOLOGICAL SOCIETY OF LONDON.

Ordinary Meeting, November 8th, 1893.

P. McBRIDE, M.D., Vice-President, in the Chair.

E. CLIFFORD BEALE, M.B.,	| Secretaries.
SCANES SPICER, M.D.,	

Present—20 Members and 8 Visitors.

The following gentlemen were elected Members of the Society:—

PATRICK WATSON WILLIAMS, M.D., Bristol.
 WALTER GEORGE SPENCER, M.B., F.R.C.S., London.
 WILLIAM HALE WHITE, M.D., F.R.C.P., London.

The Chairman briefly referred to the loss the Society had sustained by the death of Mr. ARTHUR HENSMAN, one of its original members.

The minutes of the previous meeting were read and confirmed.

Mr. E. CRESSWELL BABER exhibited a case of *Congenital Occlusion of Posterior Naris, relieved by Operation.*

Master H., aged nearly six years. Was first seen on August 16th 1892, in consultation with Mr. H. H. Taylor.

History: He had always had more or less difficulty in breathing through the nose, slept with his mouth open, and snored. Slight deafness at times. When an infant had great difficulty in sucking, both the breast and bottle, and had had discharge from right nostril since birth.

Present state : Partial nasal obstruction and difficulty in keeping the mouth closed. Anterior rhinoscopy showed on the right side a good deal of mucous discharge, inferior turbinated body much enlarged, firm to the probe, and a slight bending of the anterior part of the septum to the left. Right middle turbinated body normal. Left side, normal. Palpation, only a few small adenoids : right choana blocked by an obstruction which did not project into the naso-pharynx. Left choana clear. After one or two unsuccessful attempts a view of the posterior nares by posterior rhinoscopy was obtained. Right choana was found completely blocked by a smooth, slightly concave membrane, with a small, round, dark depression at its lower part, but no perforation visible. The membrane was pale, and had a small vessel running across it, and was also slightly depressed at its upper part. Left choana normal. Posterior margin of the septum *not* deflected. No air whatever passes through the right nostril on forcible expiration. Further examination from the front showed that *on the floor* of the *right* nasal cavity a probe passed in just over two inches, whilst a little above this it was arrested at a point rather over $1\frac{1}{2}$ inches deep. On the *left* side the probe passed through the inferior meatus into the naso-pharynx to the depth of $3\frac{1}{4}$ inches. On October 19th, under chloroform given by Mr. Taylor, the probe encountered an obstruction at the right choana, but with pressure passed through it ; a band of obstruction appeared, however, to extend outwards from the posterior septum across the choana. This was broken down with forceps, and with a blunt chisel introduced through the nose, all being guided by a finger in the naso-pharynx. Down's No. 3 bougie with oval diameter then passed through into the naso-pharynx, and a probe introduced from the front moved vertically for about half an inch in the choana. No. 3 bougie was at first passed daily, afterwards less frequently. The discharge gradually ceased, the right nostril became fairly clear, and on posterior rhinoscopy a vertical slit, measuring about a quarter of an inch, was seen near the centre of the membrane : but as some difficulty occurred in passing bougies Nos. 3 and 4, owing to their hitching on to a prominence on the back part of the septum, he was again put under anæsthetic on December 31st, and the projection on the septum attacked with a hollow chisel and mallet. The inferior turbinated body was at the same time crushed outwards by dilating freely with forceps, and as the result No. 4 bougie passed easily, and there has been no difficulty in passing it since. Posterior rhinoscopy showed that the edges of the opening had healed, the opening itself being considerably larger, pear-shaped, and broader below than above. The right nostril was freely pervious, and there was no discharge. The bougie, which was at first frequently used, was now only passed by the mother once a month as a precautionary measure.

In regard to the nature of the obstruction in this case, the treatment showed that it was partly membranous and partly bony, the latter consisting in a projection on the bony septum about half an inch thick, but whether it was adherent to the inferior turbinated body in front of the membrane was uncertain. There was some asymmetry of the face, the right cheek being rather more prominent than the left, which helped to confirm the congenital character of the obstruction. The operative

treatment in this case had been of benefit by producing considerable improvement in nasal respiration, and by arresting the discharge from the nose.

Dr. DUNDAS GRANT remarked on the rarity of the affection, having only seen one case, and that in an adult. Forcible perforation of the obstruction was effected by means of a trocar; the opening was further enlarged by means of a probe-pointed knife, and a vulcanite tube was introduced. The patient was ultimately able to introduce the tube for herself, and to retain it for periods extending as long as a fortnight at a time. He referred to the hemiatrophy of the face, but on being reminded by Mr. Cresswell Baber that the atrophy was on the opposite side to the obstruction, expressed the opinion that the value of hemiatrophy as an evidence of the congenital nature of the condition was more than doubtful.

Dr. J. B. BALL showed a case of *Leprosy with Throat Lesions*.

G. F., aged thirty, stableman, had been under Dr. Abraham's observation for some years, and was admitted at his recommendation into West London Hospital on October 12th, 1893, on account of gradually increasing laryngeal dyspnoea. On October 13th Mr. Bidwell performed tracheotomy.

Patient was born in England, and went to India with his father (a soldier) at six weeks old. He returned to England at ten years old, and appeared to have been quite free from symptoms of leprosy for at least ten years after his return home. For the last nine years the disease had gradually developed and increased, and was now well-marked on the face, forearms, hands, legs, and feet. The voice had been hoarse for three years. Difficulty of breathing first commenced about a year ago. There had been some blood-stained discharge from the nose for about two to three years. He had not complained of any particular soreness of the throat, and had no idea how long ago it became affected. The cicatrized appearance of the throat, however, showed evidence of former ulceration over a considerable area.

Along the centre of the dorsum of the tongue were some large, broad tubercles. There were numerous small nodules on the hard and soft palate, and a small ulcerated area on the anterior aspect of the soft palate. The soft palate and pharynx were pale, and there was a good deal of cicatricial tissue in these parts. The uvula had almost entirely disappeared. The posterior faucial pillars were cicatrized to the posterior pharyngeal wall, and approximate to each other, thus narrowing the passage from the naso- to the oro-pharynx.

The epiglottis was thick and infiltrated, and the glosso-epiglottic folds, especially the median, were thickened. The regions of the arytenoids and ary-epiglottic folds were occupied by two pale, irregularly pear-shaped swellings, with a somewhat uneven nodular surface. These swellings approached each other in the middle line, and prevented a view of the glottis and cords.

There was some superficial ulceration over the cartilaginous nasal septum on both sides, and a cicatricial band running from the septum to the middle turbinated bone on the right side. No perforation.

Mr. BIDWELL referred to the method of performing tracheotomy in this case. He had found it advisable to stitch the skin to the edge of the tracheal wound, thus making a permanent opening, and obviating the necessity for the constant use of a tube.

Dr. CLIFFORD BEALE exhibited a new form of *Portable Oxy-hydrogen Lantern*, which had been designed at his suggestion by Mr. J. H. Steward, optical instrument maker, 406, Strand, London. The lantern, being very compact and portable, was especially adapted for use in laryngoscopic work at the bedside.

Mr. R. S. CHARSLY exhibited an improved form of *Galvano-Cautery Snare* for nasal use.

Dr. DE HAVILLAND HALL had used this snare and had found it very convenient, and a decided improvement on some of the older forms.

Dr. DE HAVILLAND HALL showed a case of *Stenosis of the Larynx*.

C. A., aged twenty-five, contracted a sore in August, 1892. On October 19th he attended at the Westminster Hospital with acute laryngeal and pharyngeal catarrh and ulceration of soft palate. He continued under specific treatment until November 9th; he then left London, and did not attend again until January 25th, 1893, when he was admitted into the hospital, as he was suffering from grave dyspnoea. The epiglottis was much swollen, and there was general infiltration of the ary-epiglottic folds and arytenoids, but no ulceration. Tracheotomy was performed on January 28th. About a week later he expectorated some pieces of necrosed cartilage. Six weeks after the tracheotomy, dilatation with Schroetter's bougies was commenced, but had to be discontinued on account of the formation of an abscess in the larynx. In May, thyrotomy was performed by Mr. Spencer, and necrosed cartilage scraped away. No attempt was made at the time to bring the parts together. Later on, strapping was employed to bring the two halves of the larynx together. Eventually union took place, and the patient was left breathing through the original tracheotomy wound.

Dilatation with bougies was then resumed, and in the course of two months Dr. Hall was able to pass No. 9 easily. At the present time the patient can expire through the larynx, but on attempting inspiration the ventricular bands are sucked together, and hardly any air enters. Dr. Hall attributed this to the collapse of the walls of the larynx from necrosis of cartilage, and asked the opinion of the members as to what further could be done for the patient.

Dr. CLIFFORD BEALE brought forward a case of *Stenosis of the Larynx after Tracheotomy*.

A man, aged forty-six, had suffered from hoarseness for nearly eight months before his admission to the Chest Hospital, Victoria Park, in August, 1893. He gave a clear history of a syphilitic infection some twenty years before, but no manifestations of syphilis had shown themselves of late years except in the larynx. A few days after admission he suffered from acute laryngeal dyspnoea. The vocal cords were seen to be fixed midway

between complete adduction and the cadaveric position. Sudden obstruction of the larynx occurred, but tracheotomy was promptly performed, and in a short time he made a good recovery, but the stenosis of the larynx continued. His general health was now very good, and he could breathe with difficulty through the larynx, and speak hoarsely and with an effort by covering the tracheal opening. The right cord appeared to move slightly, but the left hardly at all, and the glottic chink remained very narrow.

What further operative treatment was advisable in such a case?

Dr. FELIX SEMON discussed the question of radical operation in syphilitic stenosis of the larynx. Whilst admitting that in certain cases methodical dilatation by means of Schroetter's bougies, or of O'Dwyer's intubation tubes, might yield good results, he warned against their premature application in recent cases of ulceration, as acute perichondritis might be produced under such circumstances by forcible introduction. He then dwelt upon the question whether in cases in which tracheotomy had been performed, and the patient could breathe comfortably, wearing the tube, whilst his voice was either normal or at any rate good enough not to interfere with his business, any radical operation ought to be performed, which, though enabling the patient to dispense with the tube, yet at the same time rendered him more or less aphonic. Although he admitted that every case of that sort ought to be judged on its own merits, yet from a general point of view he opined that preservation of voice with wearing of a tracheotomy tube was preferable to dispensation with the tube with more or less complete loss of voice, and illustrated this opinion by briefly detailing several cases in point, which had been under his own notice. More especially he referred to one example which he promised to show soon to the Society, in which, in a case of syphilitic stenosis in which the tracheotomy tube had been worn for fully ten years, quite recently such a spontaneous improvement in the size of the glottis had taken place, that there was now a reasonable chance of removing the tube without performing any further operation. At the same time, in this case, the voice had improved to a marvellous degree.

Dr. DE HAVILLAND HALL agreed that in such a case as his any further attempts at dilatation would be useless, as the cartilaginous framework of the larynx was already so much destroyed. A permanent opening in the trachea would remain, and the tube need not be worn.

Dr. KIRK DUNCANSON exhibited a specimen of *Epithelioma of the Larynx complicated with Bronchocele*.

Dr. PERCY KIDD showed a case of *Tubercular Ulceration of Vocal Cord cured by Lactic Acid*.

The larynx presented the following appearances:—Vocal cords somewhat reddened and thickened, movements normal. Plate-like prominence of inter-arytenoid fold.

Physical examination of the lungs reveals slight weakness of breath-sounds at the right apex, but no further change.

History: The patient, J. M., aged twenty-nine, a married woman, was first seen in May, 1892, when she came as an out-patient to the Brompton

Hospital, complaining of a chronic winter cough and frequently recurring loss of voice, extending over a period of six years. Physical examination of the chest gave a negative result. The larynx showed general congestion, but no further abnormality.

The patient was transferred to the throat department, where the larynx was painted a few times with a solution of chloride of zinc (gr. xx. ad 3j). A fortnight later, swelling of the inter-arytenoid fold and slight irregularity of the surface of the cords were noted. Local treatment was discontinued. In September, 1892 (four months later), fusiform swelling of the middle third of the right cord and a small whitish patch on the left processus vocalis were observed. Iodide of potassium in ten-grain doses, three times a day, was then prescribed; but in a few weeks superficial ulceration developed on both vocal cords. A solution of iodine in glycerine was then brushed over the vocal cords, and several times without avail, the ulceration slowly extending. In January, 1893, the cords throughout their whole length presented a crumbling, ragged, greyish, ulcerated surface. The sputum, which was very scanty, had been twice examined for tubercle bacilli with a negative result, but nevertheless it was determined to apply lactic acid without further delay. After two applications of a fifty per cent. solution, followed by nine applications of the pure acid, the cords showed distinct evidence of healing, having acquired a reddish, irregular aspect. The patient's general condition also manifested marked improvement about this time, viz., March, 1893. Early in the month tubercle bacilli were found in the sputum, although no physical signs of disease could be detected in the lungs. Owing to the development of fresh ulceration in the larynx, pure lactic acid was again applied on nine occasions in April and May. By the beginning of June the larynx had assumed very much the same appearance as it now presents. No further relapse has occurred.

Dr. DUNDAS GRANT exhibited a case of *Septal Growths*.

The patient, a dairyman, for six or eight weeks had complained of a feeling as of a foreign body in the throat. No foreign body could be found, either by Dr. Grant or by Dr. Hugh Smith, by whom the case was first seen. By posterior rhinoscopy, growths could be seen projecting from both sides of the septum, touching the hypertrophied inferior turbinated body on the left side. They were soft, corrugated, and easily compressible, and were visible also on anterior rhinoscopy.

The posterior extremities of the inferior turbinated bodies were removed with the ring-knife, and a week later a portion of the growth on the left side was removed with uvula scissors passed through the nostril. On examination by Mr. Wyatt Wingrave the growth proved to be little more than local hypertrophy of normal structures, and as comfort had been restored to the patient no further operation was thought necessary.

Dr. FELIX SEMON exhibited a case of *Functional Spasm of the Muscles closing the Jaws*.

The patient, J. W. D., aged forty-two, a clergyman, began to experience difficulties in opening his mouth, *but only when talking*, after a second attack of influenza about one and a half years ago. For all other purposes

he could and can use the parts perfectly well ; thus he can eat, bite, open and shut the mouth at command, yawn, etc. The difficulty in moving the lower jaw when talking quickly increased. At present he can only talk with his teeth firmly set, and after talking for a long while he has some difficulty in opening his mouth. The difficulty is said to be less in the mornings, and also when the patient has to speak unexpectedly, whilst every mental *effort* to *overcome* the trouble only leads to its *aggravation*. The movements of the lips, tongue, palate, larynx, etc., are perfectly unimpeded.

The case is, so far as Dr. Hughlings Jackson's (who sent the case to Dr. Semon) and the latter's own experiences go, unique. The fact that the spasm only occurs during the volitional effort of speaking seems to ally it to the professional neuroses, and even more closely, perhaps, to spastic aphonia. The localization of the source of this form of spasm is likely to be in the cortical or sub-cortical areas for the movement of chewing, which have been described by various authors, and most recently been accurately localized by Réthi¹ as situated in front and laterally from the cortical centres for the limbs. Unilateral irritation of one of these centres would, in accordance with Réthi's experiments, suffice to produce bilateral spasm, just as in Semon's and Horsley's experiments unilateral irritation of a phonatory cortical centre sufficed to produce bilateral spasm of the vocal cords.

Should the affection in the present case, as the reporter suspects, be analogous to the functional spasm of the glottis in spastic aphonia, the functional prognosis would not be favourable. The internal administration of arsenic has failed ; at present the patient is about to take iodide and bromide of potassium in ten-grain doses.

Dr. VIVIAN POORE referred to the case of a clergyman who, in order to overcome a similar spasm whilst speaking, habitually used a plug between the teeth. The condition of Dr. Semon's patient appeared to be allied to stammering, but he was not aware that stammering had been known to come on after influenza. He related the case of an old lady who suffered from spasms of the muscles of the jaw and of the tongue, which always came on when she attempted to eat, and which at times jerked the food out of her mouth. The spasm of the jaw in this case was clonic, and some amount of jaw clonus could be elicited. He thought that some senile degeneration might be going on in the cortex to give rise to these symptoms. He believed that the best way to overcome such forms of stammering was to use the voice in an unaccustomed manner, to "spout," like a pompous actor, and not to attempt the natural way of speaking. He mentioned a notable instance where such a tone was successfully used in the pulpit to overcome a tendency to stammering, although the artificial tone produced was very foreign to the character of the preacher.

Dr. FELIX SEMON showed a case of *Traumatic Perichondritis of the Larynx*. Cure.

The patient, M. V., aged twenty-one, a sister of mercy, in February,

¹"Sitzungsberichte der k. k., Academie der Wissenschaften," vol. cii. part 3, July, 1893.

1892, swallowed a piece of rabbit bone, which stuck in her throat on the *right* side. A practitioner attempted to push it down, but from that moment the patient lost her voice and experienced considerable pain in the right side of the throat, whilst she was feverish in the evenings.

When seen on April 2nd, 1892, the right half of the thyroid cartilage was acutely tender on pressure, and internally the whole right half of the larynx was much swollen, thickened, and, in part, oedematous. The swelling extended over the right hyoid fossa, aryteno-epiglottidean fold, ventricular band, vocal cord, and arytenoid cartilage, all these parts being so much glued together that they could hardly be distinguished from one another. The whole right half of the larynx was immobile during phonation and respiration, the voice was quite aphonic, and there was considerable dysphagia, but at that time there was no dyspnoea. The diagnosis of perichondritis of the right ala of the thyroid cartilage was made, it being supposed that the foreign body had been pushed into the larynx, and was probably still imbedded in the inflammatory mass.

Antiphlogistic treatment and iodide of potassium failed to improve matters. On the contrary, the internal swelling and thickening gradually extended along the front wall of the larynx to the *left* side, and in about four weeks the latter was even more swollen and tender than the right side had originally been. At that time large masses of granulation tissue filled the whole anterior part of the larynx. The pain, difficulty in swallowing, and the fever had further increased. The patient was taken into St. Thomas's Hospital, and on May 25th Sir William MacCormac performed thyrotomy, and this seemed to offer the only chance of recovery. The larynx having been opened, and the granulation tissue having been scraped away, extensive necrosis of the *left* ala of the thyroid cartilage was discovered. On a probe being introduced into a fistulous tract, leading into the interior of the cartilage itself, an abscess cavity was entered, in the midst of which a piece of bone was found. This was examined by Mr. Shattock, and declared to be a piece of rabbit bone. The walls of the abscess cavity having been thoroughly scraped, the wound was dusted with iodoform and drainage was provided for. The patient made an uninterrupted recovery, and has to a considerable extent recovered her voice. There is still a good deal of thickening in the front part of the larynx at the level of the vocal cords, but the normal constituent parts can now be clearly distinguished from one another.

The case is put on record as illustrating (1) the danger of forcibly pushing down angular foreign bodies which have entered the mouth; (2) the possible peregrinations of foreign bodies under such circumstances (in this case the bone had certainly wandered from the right into the left half of the larynx); (3) the fact that even an acute perichondritis is no contra-indication against opening the larynx with a view of removing the source of irritation in the event of foreign bodies having entered it.

Dr. FELIX SEMON exhibited a case of *Symptoms of Incomplete*

Graves' Disease, and later on Complete Premature Baldness, following Removal of Nasal Polypi.

A. M., aged thirty-nine, a clergyman. The patient had been shown to the Clinical Society of London on April 12th, 1889, when exophthalmos of the right eye with Gräfe's and Stellwag's symptoms had developed after repeated operations (by means of the snare and galvano-cautery) for removal of recurrent nasal polypi from both nostrils. His case, so far, has been fully described in vol. xxii. of the "Clinical Society's Transactions." In the discussion which followed the paper, doubt was expressed as to the *causal* connection of the symptoms last named with the operation, especially as neither enlargement of the thyroid gland nor cardiac symptoms had then occurred. Shortly after the demonstration, however, it was noticed that the pulse-rate, which so far had been normal, had increased to over 100, and ever since it had varied between 100 and 110. There had been no heart palpitations, and the thyroid gland had not increased in size. The patient in 1889 left for India. On his return in the spring of 1893 the exophthalmos had somewhat decreased, but the pulse-rate on the average was still about 100, and complete baldness—extending over *both* sides of the head—had developed shortly after the patient left Europe. The hair had also come off from other parts of the body. In what relation, if any, this alopecia stood to the symptoms formerly observed seemed quite obscure. The patient, whilst abroad, had not suffered from any other disease which could produce alopecia. Treatment by feeding with thyroid glands, which was tried at the patient's own suggestion, had not yielded any results.

Mr. CRESSWELL BABER mentioned the case of a man, aged twenty-six, under his care, in whom, after removal of polypi with the cold snare diplopia occurred on looking to the right, with want of power of the right external rectus. The ocular symptoms disappeared in about six weeks under the administration of perchloride of mercury and iodide of potassium. Numerous small growths were subsequently removed, but there was no return of the ocular disturbance. He stated that he had had a similar attack when operated on with forceps two years previously. There was marked erection of the inferior turbinated bodies.

Mr. R. S. CHARLEY had observed marked enlargement of the glands in the neck and protrusion of eyeballs, lasting for a period of three months after operation for removal of turbinated body with the galvano-cautery. The pulse had ranged as high as 110, but complete recovery ensued.

PROCEEDINGS OF THE LARYNGOLOGICAL SOCIETY OF LONDON.

Ordinary Meeting, December 13th, 1893.

FELIX SEMON, M.D., F.R.C.P., Vice-President, in the Chair.

E. CLIFFORD BEALE, M.B. }
 SCANES SPICER, M.D., } Secretaries.

Present—21 Members and 2 Visitors.

The following gentlemen were elected Members of the Society :—

W. MILLIGAN, M.D., Manchester.
 P. R. W. DE SANTI, F.R.C.S., London.
 EDMUND H. COLBECK, M.D., London.
 CHARLES S. AYRES, M.D., London.
 ERNEST B. WAGGETT, M.D., London.
 L. H. PEGLER, M.D., London.
 MICHAEL FOSTER, M.B., San Remo.

The minutes of the previous meeting were read and confirmed.

The following members were nominated by the President to serve on the Audit Committee :—

Dr. W. HILL.
 Mr. W. R. H. STEWART.

Mr. ANTHONY BOWLBY exhibited a case of *Perichondritis*.

R. Z., aged fifty, a coachman. Disease began with sore throat eight months ago. Lost voice three months ago. Pain in swallowing for several months. Has had slight winter cough for some years, and he has got worse since the throat became affected. Abscess formed over cricoid cartilage three months ago, and burst. History of syphilis twenty-five years ago.

Present condition : enlargement and thickening of soft tissues over larynx. Enlarged glands in submental and submaxillary regions. Much pus in and about larynx. Epiglottis swollen and ulcerated. Soft red granulating mass on left side of larynx in subglottic region. General swelling of laryngeal mucous membrane, with ulceration in parts.

Dr. SCANES SPICER thought that the case was probably tubercular.

Dr. DUNDAS GRANT also thought that it might be tubercular. The formation and discharge of an abscess was not a rare occurrence in cases of perichondritis. He related a case, somewhat similar to that exhibited, in which the disease was certainly tubercular and in which similar perichondritis had occurred.

Dr. FELIX SEMON exhibited the following cases of *Syphilitic Stenosis of the Larynx* :—

Case 1 : Mrs. G., aged about fifty-five. Date of primary affection not exactly known, certainly very many years ago. Throat troubles began more than twelve years ago. In 1883 tracheotomy on account of steadily increasing dyspnoea; has worn tube ever since. The arytenoid cartilages were for many years greatly thickened and almost immobile, the glottis reduced to a very small triangle, formed by the internal aspects of the arytenoids and the posterior wall of the larynx, whilst in its anterior three-fourths the vocal cords were seen to lie close to one another. The voice was quite aphonic all these years. From time to time superficial ulceration used to occur in various parts of the larynx, which could always be promptly checked by the use of iodide of potassium. Quite recently, *i.e.*, within the [last three weeks, without any apparent cause a surprising improvement had taken place in every

respect. The glottis had become much larger, the swelling of the arytenoid cartilages had much diminished and their mobility improved : the previously aphonic voice had regained tone, and there was now a fair prospect that the tube could be ultimately dispensed with without any further operation.

Case 2 : This had been fully described by Mr. E. C. Stabb, in vol. xxvi., p. 239, of the "Clinical Society's Transactions." W. M., aged thirty-seven, contracted syphilis in 1884. In 1891 tracheotomy had to be performed. On February 10th, 1893, Mr. Stabb performed thyrotomy, excised large quantities of cicatricial tissue, including the right vocal cord and ventricular band, and removed a large piece of the necrosed cricoid cartilage. Quick recovery and remarkable return of voice, but still considerable narrowness of glottis.

Dr. FELIX SEMON exhibited a case of *Acute Œdema followed by Hematoma of Left Half of Larynx and Transitory Immobility of Left Vocal Cord after Football Accident.*

T. R. C., aged thirty-two, a medical man. On November 25th, 1893, at 3.30 p.m., patient received a kick with a foot against the left half of the larynx whilst playing football. Immediate aphonia, but no pain and no dyspnœa. Patient came immediately to town, sucking ice on the way. When seen at 7 p.m. there was enormous œdema of whole left half of larynx except the epiglottis. Voice quite aphonic, considerable pain on swallowing, no dyspnœa. Expectoration of slightly blood-stained mucus just beginning. No crepitation to be detected. Patient taken into St. Thomas's Hospital. Four leeches to left half of larynx. Leiter's coil with iced water round neck, sucking of ice. Everything in readiness for intubation or tracheotomy. Night pretty restless, good deal of blood-stained expectoration. Temperature never went beyond 99° on second day after accident.

On November 26th, at noon, left half of larynx changed into brilliantly red, tense tumour, circumference of which, however, was slightly smaller than the extent of the œdema seen on previous evening, but the left half of the epiglottis and left pyriform sinus were also enormously swollen and congested. Antiphlogistic treatment continued.

November 30th : Circumference of swelling about the same as on 26th, but colour markedly purple. Still complete aphonia ; no dyspnœa. Slight pricking sensations in left half of throat ; Leiter's coil continued. Potass. iod. gr. x, ter die.

December 4th : Colour of swelling now very dark blue. Circumference slightly smaller. Sounds can be produced with effort. Left cord in part seen, intensely congested and motionless in middle line. Iodide continued, but coil left off.

9th : Voice much better. Swelling almost entirely gone. Left vocal cord still intensely congested, motionless in mid-line. Several patches of ecchymoses on left ventricular band. Iodide gr. v, and liq. strychn. ℥ ij ter die. Massage of neck.

12th : Mobility of left cord slightly improved. Front part of left ventricular band somewhat more swollen, covering anterior half of

corresponding vocal cord. In its midst one large extravasation of blood. Voice much better. No subjective inconvenience.

Dr. Semon mentioned another case of direct injury somewhat similar to the foregoing, in which the bruising appeared on the opposite side of the larynx, and was apparently an instance of *contrecoup*. Such an occurrence he believed to be extremely rare and most difficult to explain, but the blow had undoubtedly been inflicted on the left side of the larynx, and extreme ecchymosis had appeared on the right side, the left remaining to all appearances healthy.

Dr. SCANES SPICER brought forward a case of *Stenosis of Fauces with other Palato-Pharyngeal Lesions, the Results of Ulceration, and Subsequent Adhesions in a Syphilitic Subject*.

E. M., aged thirty-one, was a servant. In 1884 patient had a rash and sore throat, followed by hair falling out. Had had throat troubles, and been under treatment privately and in hospitals ever since.

Mr. C. Batchelor, of Staines, saw patient in August, 1892, for ulceration of fauces and dysphagia. There was then marked constriction of fauces. Under iodide the ulceration rapidly improved, the stenosis and dysphagia increasing.

She was sent by him to the throat department at St. Mary's Hospital on January 10th, 1893. She could then swallow ordinary food only after prolonged chewing, and it occasionally returned through the nose; fluids usually came back that way. The isthmus faucium was so narrowed by adhesions of the anterior faucial pillars to the tongue that the channel would only admit an ordinary lead pencil; it was made out also that the soft palate was perforated, the uvula almost gone—the soft palate adherent to the posterior pharyngeal wall. There was no existing ulceration to be seen; no difficulty of breathing or marked voice alteration.

It was then proposed to divide the cicatricial tissue constricting the fauces with a galvano-caustic knife, and keep channel enlarged with bougies, but before this could be arranged the cicatricial tissue spontaneously and rapidly ulcerated, and a good isthmus was reproduced, allowing comfortable swallowing. The patient had remained thus for nine months, and only reappeared for treatment on November 28th, complaining that the dysphagia was increasing again: and on examination it was seen that there was much narrowing, the faucial walls being also ulcerated.

Suggestions were invited (1) as to the best way of dealing radically with the faucial stenosis in this interesting case; (2) as to whether the palatal perforation and palato-pharyngeal adhesion should be simultaneously or subsequently treated, and, if so, what method of dealing with these had hitherto given the best results.

Dr. DUNDAS GRANT asked if the patient had much trouble in swallowing, as, unless she had, he thought it was best not to attempt any operations. He considered that to enlarge the small opening between the pharynx and naso-pharynx would only make her worse. If it were thought proper to divide the bands extending on to the tongue from the anterior pillars he thought the case would be a favourable one for insert-

ing wires like earrings into the bands, and when the apertures became permanent for making horizontal cuts from these apertures to the free edges. This might afford a chance of attaining permanent division, as in the old operation for webbed fingers. Simple incisions would soon close up.

Mr. CRESSWELL BAER referred to a case of cicatrix of the lower pharynx, exhibited by him at a previous meeting ("Proceedings of the Laryngological Society," No. 2, p. 9), which showed the tendency that existed to contraction after excision of a portion of the cicatrix, and argued against excision in cases of that description unless there was difficulty in deglutition or respiration.

Mr. CHARTERS SYMONDS thought that so long as an opening was maintained which was sufficient for its functions of deglutition it was best to leave the case untouched. He mentioned an instance of a boy in whose pharynx the opening had been reduced to the size of a lead pencil, and yet was sufficient for all purposes.

Dr. CLIFFORD BEALE, referring to the closure of the naso-pharynx, mentioned two cases recently seen, in one of which there was complete closure, and in the other a tiny opening. The opening being guarded by healthy muscular tissue retained its function, and permitted nasal respiration, while it prevented the entrance of food into the nose. In the other case no muscular tissue appeared to be present, and any perforation made by operation would leave the patient worse than before. Syphilitic contraction was the cause of the stenosis in both.

Dr. BRONNER suggested the possibility of transplanting mucous membrane to restore the normal shape of the pharynx. He had seen one such case, but did not know what the final result had been.

Dr. BENNETT asked whether any member of the Society had experience of the results of dividing the soft palate longitudinally between the hard palate and the pharyngeal wall, in cases of completely adherent palate?

Dr. WILLIAM HILL thought that it might be taken as a general law that it was best not to operate in the presence of a liability to syphilitic ulceration if possible.

Dr. SCANES SPICER, in reply, thought that the suggestion made by Dr. Bennett was a good one. He did not think that it would be possible to exclude a liability to ulceration in a syphilitic case such as the one he had brought forward, and this would not deter him from a radical operation if he considered the swallowing would be permanently improved thereby.

Dr. DUNDAS GRANT exhibited a case of *Occlusion of Posterior Naris*.

H. M., aged twenty-seven, had complained of deafness in the right ear three years ago. She had then complete obstruction of the right nostril, which was full of thick mucus. On rhinoscopic examination the right choana was seen to be completely closed by what looked like a uniform cicatrix. There was no history such as would account for its formation as the result of disease or injury, and it was in all probability congenital. She had been told that at the time of her birth she breathed with great difficulty, and that the doctor "probed" her nose.

Dr. Grant perforated it by means of a bistoury and inserted an india-rubber tube, which was left *in situ* for three days. Unfortunately, this woke up the dormant ear mischief, and she had perforative inflammation, which had, however, left no trace on the drum-membrane. The opening in the choana soon closed on the removal of the tube, and the operation had to be repeated. She soon got accustomed to the introduction, retention, and removal of one of Dr. Grant's vulcanite nasal tubes, and the perforation still remained. She had at times worn the tube as long as a fortnight. She now wore it at night. It was interesting to see how it caused absorption of the irregularities on the right side of the septum, which at first rendered its introduction much more difficult than it was at present.

The case had been exhibited before the Hunterian Society, in November, 1891.

Mr. CRESSWELL BABER thought that the greater tendency to closure which existed in this case, compared with the one shown by himself at the last meeting, was perhaps due to the difference in age of the patient. He pointed out not only the asymmetry of the face, but also the deflection of the septum to the left (the normal) side, present in both cases.

Mr. SYMONDS thought in such cases it was better to make a free opening by removing a piece from the posterior margin of the vomer. In one case he had cut through the membranous centre with a knife, then enlarged with a saw. Then by two horizontal cuts a piece of the septum was isolated and removed. No after-treatment was required, and the success was complete.

Dr. DUNDAS GRANT exhibited a case of *Intra-Laryngeal Growth*.

Miss D., aged seventy-three. Occupation: house and needlework. The patient had applied to him on the 27th of last month on account of extreme hoarseness, which had been gradually developing between three and four years. There was also a bleating or croaking sound in her voice, and her breath was short but not markedly stridulous. Swallowing was normal, and there was no cough. She was free from pain, except a slight burning after prolonged talking. Externally there was found a considerable enlargement of the right lobe of the thyroid gland, pushing the trachea to the left side, but no enlargement of lymphatic glands. Laryngoscopic examination revealed a growth of irregular shape, broad-based, and sessile, in the anterior part of the larynx. Its base extended from near the anterior extremity of the right ventricular band across the commissure and along the anterior two-thirds of the left ventricular band, apparently filling the ventricle, and having the ventricular band stretched over and attached to it. It was seen to cover the corresponding portions of the vocal cords, but they appeared to move quite independently of the growth. The portion over the commissure seemed to have a downward offshoot, intruding between the vocal cords so as to prevent complete closure and apposition. The surface was somewhat irregular, but in no part denuded of mucous membrane. The colour of the growth was almost that of normal mucous membrane, but with a slightly bluish tinge, suggestive of its being more or less angiomatous. It was probably a

diffuse papilloma. The hoarseness was no doubt produced by the intra-laryngeal growth. The dyspnoea and the peculiar "bleat" or "croak" was attributed to the compression of the trachea by the thyroid tumour, a symptom peculiarly characteristic of tracheal stenosis. Dr. Dundas Grant proposed to attempt to remove the portion intervening between the vocal cords by means of his intra-laryngeal forceps, but he was not very sanguine and would steer clear of the *nimis diligentia*. A portion of the growth would be examined microscopically.

Dr. A. BRONNER exhibited a new form of *Forceps* for the removal of nasal polypi in cases which could not be attacked successfully with the snare. The action of the forceps was cutting and not tearing, and had been found useful in clearing the way for the subsequent use of the snare.

Dr. CHARLES A. PARKER showed a drawing of the *Calculus of Soft Palate*, before removal of the calculus, and the stone itself.

W. R., aged twenty-nine, was first seen on October 17th.

History: Had always suffered more or less with his throat, and three years ago had post-nasal growths removed on account of deafness, which was greatly relieved thereby. For the last six or eight months had constantly suffered from painful and difficult deglutition, accompanied by a sharp pricking sensation, the slightest cold greatly aggravating these symptoms. No marked family history of gout or rheumatism.

Condition when first seen: Complained of great soreness of the throat, especially on swallowing; sharp pain shooting to right ear, and some deafness on the same side.

On looking into the mouth, the right side of the soft palate was seen to be very swollen and inflamed, and was bulging forward into the cavity of the mouth, and felt to the touch excessively hard and solid. Just to the right of the base of the uvula was what looked exactly like a dirty sloughing ulcer, extending backwards a considerable way. The right side of the post-nasal space was entirely blocked, and the swelling was pressing against the Eustachian tube. There were some enlarged glands on the right side of the neck. These appearances were evidently misleading, for the patient informed me that several doctors had told him it was an indolent ulcer. On further examination, what looked like this ulcer was found to be the free surface of a calculus, the rest being imbedded in the substance of the soft palate, lying apparently in a *cul-de-sac* between the muscular layers. On October 21st chloroform was administered, and the stone removed. The case seemed interesting chiefly from the *position* of the calculus. Formations of equal size had been reported as occurring in the crypts of the tonsil, but Dr. Parker was not aware of one in this position being on record.

The stone when dry weighed fifty-four grains, and Mr. Lake, who had kindly examined it, reported as follows:—"It was hard, but easily crushed" and pulverized. It dissolved for the most part in dilute hydrochloric acid; "the insoluble remainder consisted of epithelial *débris*, spores, and gladiolus mycelium. The earthy salts consisted for the most part, if not entirely, of carbonates and phosphates of lime and potash. It should

"be added that when heated on platinum it kept its shape, and became "porous by destruction of its animal and vegetable constituents."

In Lennox Browne's "Diseases of the Throat" it is stated, on the authority of Gruening, that all tonsillar and pharyngeal concretions are of parasitic origin, and are composed of leptothrix elements. This, too, seemed to be undoubtedly parasitic, but Mr. Lake thought it was due to the gladothrix, and not to the leptothrix mycelium.

Dr. FELIX SEMON remarked upon the rarity of such a calculus, of which he had never before seen or heard of an example. He was inclined to support the theory that it had been originally started by some injury to the soft palate, possibly during operation.

Dr. BALL suggested that the calculus might originally have been formed in the tonsillar crypt, and might have worked its way along the submucous tissue of the soft palate.

Mr. LAKE mentioned the occasional presence of adventitious masses of adenoid tissue in the soft palate, within which it was possible that the concretion might have begun.

Dr. SPICER asked whether there was any relation between the position of the calculus and the two small orifices sometimes seen, one on each side of the median line, at the junction of the hard and soft palate. The exact significance of these orifices was unknown to him, but they looked like the openings of small secreting glands.

Dr. WILLIAM HILL asked whether the stone was removed anywhere near the epitonsillar fossa, which was sometimes very large and a potential crypt. If that were not so, he made the suggestion that the calculus had formed around the residuum of an extra-tonsillar abscess, and asked whether there had been any history of quinsy.

Dr. PARKER, in reply, pointed out that the stone was nearer to the uvula than the tonsil, and could hardly have worked its way so far inwards. For the same reason it appeared to be unconnected with the epitonsillar fossa. There had been no history of quinsy.

Dundas Grant.

THE SOCIETY OF LARYNGOLOGY, OTOTOLOGY, AND RHINOLOGY OF PARIS.

Meeting, 2nd November, 1893.

Rupture in the External Meatus resulting from Muscular Effort. Persistent Hæmorrhage. By Dr. COURTADE (Paris).

Hæmorrhages from the external meatus are due to traumatism or pathological lesions, or to nervous disturbance. As regards the non-traumatic pathological forms they are of two kinds—one in which a discharge is simply tinged with blood, as in the case of acute otitis, otorrhæa with polypi or granulations, malignant growths, abscesses or furuncles of the external meatus; the other in which there is a considerable discharge of nearly pure blood, as in ulceration into the large peri-tympanic vessels, hæmorrhagic external otitis with blisters containing

blood, supplementary tympanic hæmorrhage, spontaneous rupture of the membrane, or of the lining of the meatus.

An example of spontaneous rupture in the meatus is described in the case of a labourer, aged forty-four, who had to raise and support for some time an enormous weight. While doing so he felt something give way in his left ear, and on feeling it with his finger found a discharge of blood. The hæmorrhage lasted all night, and when Dr. Courtade saw him next day there was a bleeding point on the floor of the meatus from which renewed hæmorrhage took place each time it was cleansed. A tampon of iodoform gauze was applied and only removed after two days, when the place was found to have healed. There was a suspicion of alcoholism, but no sign of visceral disease or atheroma.

Dr. Courtade supposes the existence of a dilatation of one of the arterioles which gave way under the influence of violent effort. He suggests the possibility of a similar condition of the vessels of the nervous centres which might ultimately determine a fatal functional disturbance.

Note on a Rare Variety of Nasal Myxoma. By Dr. LUC.

M. D., aged twenty-eight, sought advice on November 19th, 1892, for a tumour completely obliterating the left nasal fossa, and which first appeared two years previously.

The patient's physician, believing it to be a simple polypus, endeavoured several times to remove it with the snare, but each attempt being followed by such profuse hæmorrhage, he suspected malignancy, and sent the patient to the author.

The man was tall and robust in appearance, but pale from recent hæmorrhages. There was slight protrusion of the left side of the nose and corresponding malar region, indicating the commencement of malformation of the bony skeleton. The nasal fossa of this side was completely obstructed by a neoplasm, visible without speculum, having the gelatinous appearance of a myxoma, but differing by its deep blue colour, and by the peculiarity that instead of forming one or many rounded and pedunculated masses, it was constituted of a diffused and little movable mass. Simple exploration of the tumour with a probe, as gently used as possible, gave rise to such an abundant hæmorrhage that the author was led to partake of the suspicions of his *confère*. The possibility of severe operation was pointed out, in the event of the failure of one or two trials, which being laborious and likely to be accompanied with hæmorrhages, the patient was ordered into hospital. Next day the author operated with a cold snare and steel thread, preferring this to the galvano-cautery, the former not being any more liable to produce hæmorrhage when used slowly. The first attempt at extraction was followed by such copious hæmorrhage when cutting through the growth, that the constriction was rapidly terminated, and the nares tamponed, which arrested the hæmorrhage, so that at the end of fifteen minutes there was no more, and encouraged the belief that the growth might be removed bit by bit, tamponing immediately after extraction.

At the first sitting three pieces were removed ; the nose was then

tamponed, and left till next day. A compact, immovable mass was then found, about three centimètres from the nares, which could not be engaged in the wire loop, and each attempt was followed by severe hæmorrhage, necessitating immediate tamponing. It was then decided to pass a curved curette between the floor of the nares and the lower portion of the growth, and pulling it forwards to displace the neoplasm. The latter could then be seized with the double curette of Krause, on a curved handle, and exercising traction and torsion; a mass was thus detached of the size of a large prune, but of very irregular shape. Hæmorrhage was so profuse, in spite of tamponing, that a semi-syncope followed. The next day the patient was very feeble, but exploration of the nasal fossa showed it to be completely free from any trace of neoplasm. Energetic cauterization with a galvano-cautery knife was then performed, of the place of implantation of the tumour after cocaineization. The patient left upon the understanding that he was to submit himself to examination again two or three months later. The tumour was sent to Dr. Gombault, who reported upon its nature as follows:—

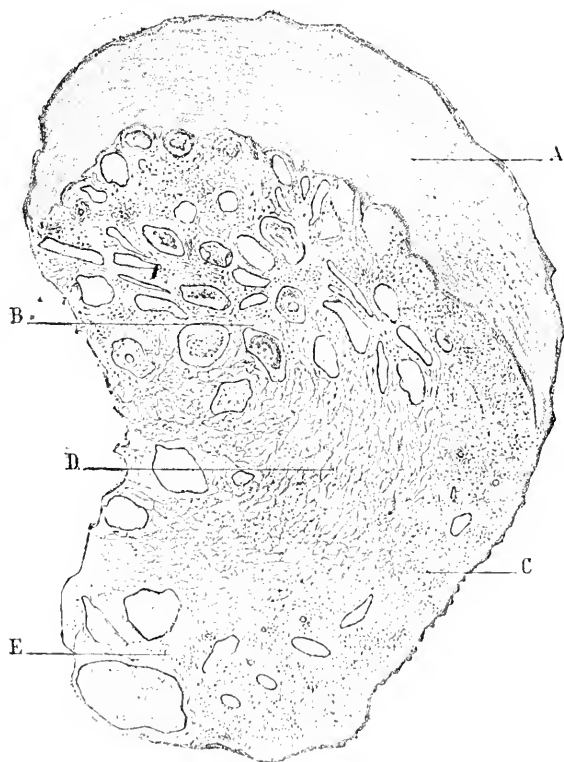


FIG. 1.

Histological Examination.—Fig. 1 shows a section through the whole. The epithelial layer—the thick and black line—is difficult to see, and is

represented by small, almost round cells, disposed in many layers. Below it, in all the portion marked A, is a very thick layer formed by round cells, greatly compressed against each other, and enclosed in a network of fibrine. It is a sort of false membrane partly necrosed, sub-epithelial, and covering only a portion of the tumour.

The parts marked B, C, D, E are the tumour proper. They do not each present the same structure, and must be described separately. The portion B encloses a great number of cavities varying in size. These are vascular openings; some are empty; most are filled by a leucocytic clot not figured here. Others are occupied by organized product, a true bud springing from the wall, and presenting lacunæ, often filled with blood or leucocytes.

Fig. 2 represents one of these vessels at a moderate enlargement.

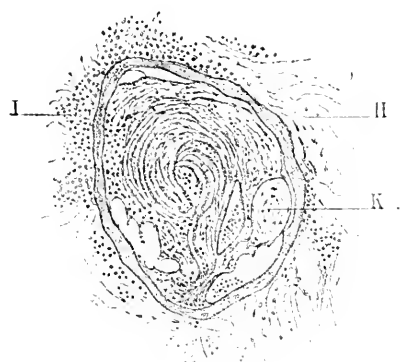


FIG. 2.

The wall of the vessel has kept a nearly normal condition. Outside this wall, at H, is nearly pure mucous tissue; at I are rounded cells, infiltrated in a fibrillar tissue, of which they mask the details. Within the wall is the bud and its lacunæ, filled with blood and leucocytes. It is formed of a layer of fibrillæ and fusiform cells, mixed with a quantity, more or less great, of rounded cells. There results a formation of whorls, often limiting a small vascular orifice, as at S in Fig. 3. These buds are therefore sarcomatous, but susceptible of higher elevation, for at K in Fig. 2 is shown a nodule quite fibrous. In all this portion B of Fig. 1 the wall of the vessels of any size is distinct and adult in structure; in some, however, it is infiltrated with round cells. The intermediate tissue of the vessel is nearly of the same type as in the portion C.

In Fig. 3 are found most of the characters of the part C. The figure is a little schematic without, however, ceasing to be exact. At V is a vessel with normal walls, and to its left is nearly pure myxomatous tissue. A little further on the fusiform cells become more numerous, and some of them are very large. These cells are arranged so as to form the wall of vessels of small calibre (S). Very numerous fibrillæ are intermixed with the fusiform cells, and constitute regular bundles, circumscribing meshes of variable calibre.

The portion E of Fig. 1 differs from the former only in the presence

of abundant interstitial hæmorrhages. The few vessels present are very dilated and full of red corpuscles.

As to part D, it presents a sort of network, with meshes more or less large, constituted of bundles of very firm fibrillæ intercrossing and



FIG. 3.

circumscribing spaces filled with fibrillar fibrine. This tissue, deprived of round cells, is continued without interruption into the neighbouring parts. A leucocytic infiltration, more or less abundant, is seen in the bands of tissue, the patches of fusiform cells, and in the meshes. It is the same tissue as in the rest of the tumour, but modified by an infiltration of fibrine in its meshes, and by necrosis of the cellular elements.

The first conclusion to be drawn from this long description is that we have to do with an inflamed tumour, in proof of which is the presence of fibrinous exudation at the surface and throughout a great part of the depth of the tumour, and the obstruction of the greater part of the vessels by leucocytes. Added to this is the fact of the infiltration of the tissue by round cells, which, judging by the facility with which they separate from the tissue, cannot be considered as an integral part of it.

The tumour is constituted essentially by connective tissue cells, fusiform for the greater part, and by fibrillæ, isolated or forming bundles.

It is evident that at many parts the fibrillæ are only prolongations of fusiform cells. The fibrillæ and cellular prolongations affect the most varied directions, and form a very complicated network, loose in some places and very dense in others.

In the neighbourhood of the large vessels they are perpendicular or oblique in direction, and are inserted upon their wall, which is often a normal one. Consequently, the structure of the tissue does not differ essentially from that of mucous tissue, and where the interstices are filled with mucous substance there is really a myxoma, especially as the elastic fibres are not completely wanting; but true myxomatous portions in the tumour are rare. Throughout the greater part of the tumour mucous substance is wanting; the fibrillæ are extremely abundant; the cells differ from the ordinary type both in form (fusiform, and no longer stellate) and by their large size, and by their method of arrangement, as, for instance, when they assume a circular shape to constitute the walls of the vessels of small calibre. The tumour, therefore, passes through a series of modifications (enumerated above) of myxomatous structure into that of a fuso-cellular sarcoma, but possesses a number of characteristics different from those which distinguish a fasciculated sarcoma.

We have, therefore, to do with a connective tissue tumour, an inflamed myxoma in full active sarcomatous transformation. These histological considerations, along with the clinical course, evidently necessitate a very reserved prognosis.

As will be seen, the perusal of the preceding note leaves only a very feeble hope of possibility of definitive cure from the treatment. We thought it our duty not to dissimulate these apprehensions from the father of the patient, and communicated to him our intention of seeking for more radical surgical intervention, after preliminary opening of the nasal cavity in case of a recurrence.

When we saw the young man again on February 12th, we observed a recurrence of the tumour; but as its very limited dimensions did not lead to obliteration of the nasal cavity, a complete exploration was possible, and allowed us to determine that the neoplasm was implanted in the depth of the middle meatus. Proceeding as at the first operation, there was no difficulty in removing the whole tumour with the cold snare, and in arresting the abundant hæmorrhage by rapid tamponing of the middle meatus. Next day the site of the growth was curetted and touched with the galvano-cautery. It was of the highest interest to know if the tumour had preserved its original characters, or if it showed any further development towards sarcoma. Dr. Gombault reported:—

“The tumour is composed of tissue resembling connective tissue, enclosing vessels with absolutely distinct walls. In places this tissue is of absolutely pure mucous structure. It is often modified, the fibrillæ becoming very numerous, and being grouped in lax bundles and circumscribing areola filled with coagulated liquid, and numerous round cells; but a remarkable feature is that these fibrillæ are in great part prolongations of fusiform cells, resembling those of myxoma, but much more numerous and voluminous. The tumour in its evolution is sarcomatous, but, contrary to what I believed—a long-celled or fuso-cellular sarcoma. It differs from sarcoma, however, in a number of important characters, since the vessels do not form a part of the tissue of the growth, and since the septa which the cells and their prolonga-

"tions form circumscribe spaces which only contain free cells. If it is necessary to give a definite opinion of this difficult case, I think it must still be called a myxoma."

At the commencement of last May (1893) the patient came for examination for the third time. We found a fresh recurrence of the tumour, but much less pronounced than before, there being only a bud inserted deeply upon the upper surface of the inferior turbinated. This piece was removed in the same manner as previously, but being unfortunately mislaid, could not be examined microscopically. The seat of implantation was carefully curetted the following day.

The patient was examined again on September 12th, 1893. His general condition was excellent, and we had the satisfaction of stating that the nasal cavity was absolutely free from any recurrence.

Remarks.—In spite of its obscurity this case has appeared to us to be interesting from many points of view, and to be worthy of publication.

We had to do in this case assuredly with a rare variety of nasal tumour, impossible to be characterized by any single denomination. If we may state our own impression, in the light of the clinical facts and the histological teachings, we must say that we do not believe we had to deal with a malignant neoplasm, *i.e.*, with a true sarcoma. We have often seen typical sarcomas of the nasal cavity, and appreciate the differences which separate these cases from the one we have described. The tumour in question gave us, clinically, the idea of malignancy from the two following particulars, its disposition to bleed and its immobility. But the former is far from being a distinction of malignant tumours, and as to the latter, we saw ultimately that it had not the significance we were disposed to attach to it. It was not due to multiple and extensive adhesions of the neoplasm to the nasal walls, but simply to its confinement in the nasal fossa, which was too narrow for it. The sign of *immobility* lost its value as a test of malignancy.

We had to do with a tumour primarily pedunculated and movable, and secondarily immobilized by its great development. We believe this growth to have been a myxoma developed deep in the middle meatus, but a rare variety of this kind of growth, distinguished by abnormal development of the vascular element, whence arose the abundance and frequency of hæmorrhages at each attempt at extraction, and by a tendency to the development, at certain points, of fuso-cellular elements, without at any part (Dr. Gombault expresses this clearly) there existing, properly speaking, any sarcomatous tissue. This case teaches us, perhaps, not to hasten great surgical operations for the extraction of nasal tumours of which the malignancy is not absolutely demonstrated. It also shows us that before proceeding to this, and without falling into the other extreme of harmful temporization, we should try to arrive at a radical result by the rhinoscopical method, and that these measures can be repeated advantageously when the recurrences which are reproduced are decreasing. We insist upon the excellent results arrived at by curettage as a means of radical cure of nasal myxomata, not only in this case, in which a definitive cure seemed particularly difficult to obtain, but also in the treatment of mucous polypi in general.

For many months we have tended to the renunciation of the galvano-cautery more and more, the use of which we formerly believed ought always to follow the extirpation of polypi. Independently of the very painful reactionary phenomena, during the days immediately following its use, and of the inconveniences resulting from swelling of the mucous membrane, which, lasting several weeks, opposes the inspection of the region one would wish, we have been struck with the inefficacy of the method. We have endeavoured to substitute it with the curette, and in this case the result has appeared to justify our opinion. We have had curettes constructed by Mathieu, fenestrated and mounted in a handle curved slightly at three centimètres from the extremity, to the right or left, according to the side to be operated upon, so that the instrument can reach the deepest part of the middle meatus, where is generally situated the myxomatous tissue which escapes the snare. Preceded by tamponing of this region with cocaine one in five, this operation is easily supported. It is well to be forewarned that if the myxomatous masses thus removed generally escape from sight it is due to the fact that the curette, in evacuating the liquid which distends them, reduces them to imperceptible fragments. The pretty severe hæmorrhage which is produced is easily arrested by an iodoform tampon in the middle meatus which ought to be immediately practised with the mirror. Limited carefully to the meatus, the tampon does not interfere with respiration, and may be left *in situ* for one or two days. When removed the result can be determined, and a second intervention made if needful.

Revolver-shot in the Right Ear. By Dr. MÉNIÈRE (Paris).

A young man shot himself in the right ear, placing the muzzle of the revolver in the concha. He was found unconscious, with blood flowing from the ear and the mouth. The bullet was discovered in the materials vomited by the patient. There was facial paralysis. When seen thirteen days later by Dr. Ménière he was apparently quite out of danger. The entrance to the meatus was torn and blackened. The meatus itself was blackened and the passage widened towards the interior, the fibro-cartilaginous portion having burst under the pressure of the explosion. The tympanic membrane was torn to shreds, and below and in front there was considerable laceration of all the tissues. Fluids syringed into the ear entered the naso-pharynx and were spat out by the patient. Loud voice-sounds were heard at four mètres. Bone conduction on the mastoid and on the frontal eminence was normal. The sound of the tuning-fork on the vertex was not heard better in one ear than the other, and when the right one was stopped by means of the finger it was heard better (lateralized) in that ear.

Treatment consisted in antiseptic injections, moist dressings, and padding with boric wool. There was little suppuration, but the meatus in cicatrizing became very narrow, the hearing power diminished, and, when six months later he died of liver-disease, there was complete occlusion.

Dr. Ménière remarked that cases of impaction of bullets in the petrous bone without causing death were not very rare. In his case it was

remarkable that the bullet should have reached the naso-pharynx without having damaged any of the large vessels, and that the internal ear should not have been injured by the concussion.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON LARYNGOLOGY AND RHINOLOGY.

Stated Meeting, December 27, 1893. ("Med. Rec.," Jan. 27, 1894.)

CHARLES H. KNIGHT, M.D., Chairman.

Modified Illuminator.

Dr. FELIX COHN presented a modification of Dr. Kuttneiss's electric head illuminator, the modification being an attachment for transillumination, enabling the instrument to be used either as an illuminator or transilluminator.

Modified Micro-phonograph.

Dr. J. MOUNT BLEYER exhibited the head attachment of the micro-phonograph for increasing normal or abnormal sounds—musical or other kinds.

Electric Cabinet.

Dr. BLEYER also exhibited an electric cabinet, which contained an interrupter making one hundred thousand interruptions per minute, for the use of electro-vibratory action upon the turbinated tissue.

Case of Sarcoma of the Nose, and one of Epithelioma of the Larynx.

Dr. HORACE CLARK, of Buffalo, sent the history of a case of melanotic sarcoma of the nose, for which he had operated, and also one of epithelioma of the larynx, with rapid metastasis to the œsophagus and pharynx, with death.

Laryngectomy for Epithelioma of the Larynx.

Dr. HUBBARD showed an epitheliomatous tumour of the larynx, for which laryngectomy had been performed the previous week. The man had since done well. Preliminary low tracheotomy was performed. The enlarged submaxillary gland was excised, as well as the entire larynx, from the cricoid to the os hyoides.

Carcinoma of the Larynx.

Dr. W. H. PARK presented a man with carcinoma of the larynx, who gave a history of three years' gradually increasing hoarseness and difficulty in breathing. There was no specific history. A tracheotomy tube had been inserted.

Dr. ROBERT C. MYLES also presented a patient with a tumour of the larynx, probably epithelioma, which had been growing gradually until the larynx was almost occluded. The question of choice of operation was raised.

Dr. PARK then presented a second patient, a man of middle age, who

four months before had first noticed a hard nodule in the middle of the hard palate. It had increased until it involved an area more than an inch in diameter. The diagnosis lay between specific tumour and epithelioma or carcinoma. There was no history of specific disease.

The Treatment of Follicular Pharyngitis.

Dr. EMIL MAYER, in a paper upon this subject, gave a brief review of the treatment of follicular pharyngitis as practised by different specialists, some of whom had given preference to one kind or other of escharotics, some to cutting forceps, etc., and finally came down to the galvanocautery, which he had himself used and recommended until the introduction of the Gottstein curette. It was a modification of this curette, to better adapt it to the pharyngeal surface, which had given him the greatest degree of satisfaction in the treatment of these cases. The author presented his modified Gottstein curette, and gave a *résumé* of cases treated, numbering perhaps forty. In all where there was no complication recovery had been rapid. He completed the operation at one sitting, curetting the entire pharyngeal wall, or as much of it as was covered by the follicles, not touching the healthy mucous membrane. With the modified instrument there was no danger, he said, to healthy tissues. Cicatrization did not occur.

Dr. MORRIS J. ASCH said he had seen many of the cases treated at the hospital by Dr. Mayer and could testify to the good results. The cure had been much more rapid than by other methods.

Dr. W. C. PHILLIPS said the old Gottstein curette had answered the purpose very well, but he thought the modification shown would make it easier to handle.

The Bacteria Present in the Human Throat, and their Relation to Acute Throat Inflammations.

Dr. W. H. PARK read the paper. He would limit his remarks chiefly to streptococci, as they were most abundant, especially in acute inflammations. They were round bacteria, about one-eighth of the diameter of red blood-cells. They divided in one direction only, and as they divided they clung together, forming a chain. Different varieties of streptococci clung together with varying degrees of tenacity, and divisions had been made according to whether they were seen in long or short chains, and upon other grounds. Some were found to be much more virulent than others when injected into animals, some pathogenic, others not, and even those which were pathogenic at one time might not be at another.

Dr. Park, in the month of March last, had made cultures from the throats of forty students and twelve other adults, none of whom were suffering, as far as known, from acute or subacute inflammation; and in the summer months cultures were made from twenty other students. In all the cases streptococci were found, in some the number and variety being much greater than in others. Similar observations were made in the country, and there also the cultures showed streptococci, so that their presence was not due to city surroundings. In the case of the country family no staphylococci were found, but these were present in most of the city cases. The throats of children in an asylum

were then examined, and streptococci were found at all ages, except before the second day. In children with pneumonia and phthisis the streptococci, and also the staphylococci, were more abundant, but they seemed similar to those found in healthy throats. In scarlet fever the streptococci in the throat were also much more abundant than in health: so also in pseudo-diphtheria.

Persuaded by his observations that in healthy throats streptococci were probably harmless, he tried experiments upon himself, and found that cultures transplanted to his own throat produced at most slight irritation. This was true when the cultures were from healthy throats, and also from throats the seat of acute inflammation.

The bacteria, which were harmless under ordinary conditions, became more active under certain states of the weather, and were present in greater numbers during the damp winter months.

Effect of Mild Antiseptics.

Dr. PARK had further observed that during the use of mild antiseptics in the nose and pharynx the streptococci became less numerous, and indeed the spray had rendered the throat almost free from pathogenic germs. This observation showed the desirability of observing local antiseptics when one was brought in contact with contagious diseases.

It was difficult to say what proportion of cases of angina, etc., developed from infection obtained from others, and what proportion from increased activity of the germs present in one's own throat brought about by changes in the weather and other causes. The author's opinion was that only a small number of cases arose from infection from others, and in those cases there was also probably some other form of exposure. The bacteria mentioned, when found in healthy localities, were less active than when they came from surgical wounds, yet they were capable of producing abscesses when injected into animals.

Dr. VANDERPOEL inquired whether non-diphtheritic sore throat was not contagious, or how would the author explain its frequent occurrence in several members of a family.

Dr. PARK said it was not contagious like diphtheria; it did not spread in a neighbourhood from a given centre. In the same family there might be different cases, but probably due to the same general condition, say that of the weather, causing throat irritation and favouring increased activity of the germs present.

Dr. CHAPPELL said that at the hospital at Forty-second Street they had concluded that follicular tonsillitis was contagious. Formerly when a case developed the disease it was apt to pass through the entire hospital, affecting all the children. The last two years they had made it a custom to at once isolate every case, and as a result the disease had not spread to the other inmates.

After some further discussion, during which opinions were expressed as to the infectiousness of follicular tonsillitis, the section proceeded to the transaction of business.

Officers Elected: Dr. D. BRYSON DELAVAN was elected Chairman for the ensuing year, and Dr. JAMES E. NEWCOMB, Secretary.

FREIE VEREINIGUNG DER CHIRURGEN BERLINS.

Meeting, July 10, 1893.

ROSE.—*Case of Death following Inflammation of the Tongue.* Usually in cases of parenchymatous glossitis an enormous swelling of the tongue arises from great hyperæmia; in most cases the danger can be avoided by large incisions, and the cases are cured. But in a case observed some time ago by the author, namely, that of a patient fifty-seven years old, with great swelling of the tongue and occlusion of the mouth, in spite of incision of an abscess of the tongue, death followed next day. The *post-mortem* examination, and the bacteriological examination, showed that there was an infectious zoonosis (Maul und Klauenseuche).

SIEGEL (Britz).—*On Glossitis and Mundseuche.* The author has observed an epidemic of this zoonosis often combined with glossitis and necrosis of the tongue. He showed a patient who was cured of the disease.

KÖBNER remarked that the patients are usually infected through the milk of diseased animals. He asked if by inoculation of the pure culture the disease could be propagated?

SIEGEL has remarked that some cases are slight, others severe. The disease when propagated from man to man is more severe than when propagated by animals.

LANGENBECH remarked that in cases of asphyxia from this infectious disease, tracheotomy can often be replaced by an emetic, as recommended by Keil.

Michael.

ALLGEMEINER AERZTLICHER VEREIN IN KÖLN.

Meetings in 1893.

HOPMAN showed a girl, sixteen years old, operated upon for a *Congenital Fissure of the Soft and Hard Palate*. The patient speaks now with good pronunciation. The malformation was combined with ozæna. This must be cured before undertaking the operation, otherwise it will not succeed. The author described the details of his operation.

HOPMAN showed plaster models of *Stenoses and Asymmetries of the Turbinateds and of the Naso-Pharynx*.

HOPMAN. *On Ozæna.* The author did not believe that ozæna was preceded by a hypertrophic condition, but that persons with wide nasal passages and small turbinateds are disposed to the disease. The secretion dries, cannot be removed, and becomes putrid through a specific bacillus. The shortness of the septum is of especial etiological value.

HOPMAN. *Syphilis Tertiaria Occulta of the Naso-Pharynx.* In seven cases of syphilitic necrosis of the nose the internal treatment did not suffice to cure the disease. It was necessary to combine it with surgical removal of the necrosed parts.

HOPMAN showed a patient, forty-five years old, with a *Traumatism of the Larynx*. Fracture could not be found, but the right vocal band was transformed into a blue-black tumour. The glottis could not be closed; the voice was rough. It was a submucous laceration of the right vocal band. The voice is now better; the vocal band has its normal form, but it is yet discoloured black.

HOPMAN showed a patient, fifteen years old, with *Defect of the Cuneiform Sinus*. The round oval cavity has been produced by the radical extirpation of a fibro-myxoma of the naso-pharynx. (For the details of the operation, see this Journal, 1892.) *Michael.*

AERZTLICHER VEREIN ZU ELBERFELD.

Meeting, November 7, 1893.

KÜHNE.—*Treatment of Diphtheria*. The author gives a historical review of the disease and its treatment, and recommends sesquichlorate of iron, chlorate of potash, and stimulation.

THELEN believed that by the swallowing of chlorate of potash solution the tonsils and palate are cleansed, but infectious deposits occur in the deeper parts of the body.

LOEWENSTEIN recommended tonsillotomy as a prophylactic remedy, also the removal of adenoid vegetations. He believed that cognac and wine are not only stimulating but also have a specific effect upon the destruction of infectious masses. From the galvano-cautery he does not expect any good effect, because in healthy persons it produces inflammation.

RINK recommended the galvano-cautery, preceded by cocainization.

RUHLE did not believe that disinfection is possible in the diseased parts.

HILDEBRANDT mentioned the toxic nature of chlorate of potash.

MANTZEL recommended methyl-violet.

Michael

DEUTSCHER AERZTLICHER VEREIN IN ST. PETERSBURG.

Meeting, November 22, 1893.

LUNIN reported three cases of *Laryngeal Erysipelas*.

(1) A patient, thirty-five years old, having a foreign body in his larynx, was attacked the same evening with dyspnoea, difficulty of swallowing, and shivering, with high temperature. On the third day the author saw the pharynx nearly normal, the epiglottis swollen, the mucous membrane over the left arytenoid cartilage red and œdematous. Two days later the left half was free and the right red and swollen. Cure resulted.

(2) A patient, nineteen years old, suffering from a cold had difficulty of swallowing, followed by an attack of suffocation. Improvement

followed leeching. Swelling of the pharynx and larynx followed, and a fresh attack of suffocation. Crico-tracheotomy was performed. On the external surface of the thyroid cartilage arose a perichondritis, lasting some weeks. Cure resulted.

(3) A patient, sixty-three years old, having caught a cold, had difficulty of swallowing, dyspnœa, and high fever. The laryngoscope showed œdematous swelling of the whole larynx, and swelling of the connective tissue of the neck and submaxillary glands. Death followed.

RAUCHFUSS believed that such cases as related by the author should be called phlegmonous laryngitis. There is no reason to believe that they are erysipelas.

KERNUG has sometimes observed erysipelas of the pharynx in the course of general erysipelas. He remarked that in hospitals for erysipelas primary laryngeal erysipelas is never observed.

DE LA CROIX also had sometimes observed the occurrence of erysipelas in the pharynx following general erysipelas. Such patients sometimes died from sudden suffocation.

The author believed that in such cases the process spreads to the larynx and lungs; in other cases the *post-mortem* examination showed purulent mediastinitis and affection of the pleura.

LINGEN remembered that Pizogoff had already described the progress of erysipelas in the form of swelling of the larynx, the maxillary glands, and sero-purulent infiltration of the mediastinum.

BIDDER remarked that gynæcologists see an internal erysipelas of the uterus.

TILNIG agreed with Rauchfuss that cases such as related by the author should be called laryngitis phlegmonosa, and the name erysipelas should be reserved for the specific disease of the skin.

DE LA CROIX remarked that the name erysipelas only signifies redness, and that there is therefore no cause to restrict it to skin affections.

Michael.

Obituary.

SAMUEL GUTTMANN.

On the 21st December, 1893, died, after a short illness, Geheimerath Dr. S. Guttman, the editor of "Guttman's Jahrbücher der Praktischen Medizin," and of the "Deutsche Medizinische Wochenschrift," a publication well known to the readers of this Journal, from the many important German papers relating to our specialty excerpted from its pages for this Journal. Laryngology and all other branches of medical science have suffered from this event a grave and perhaps irreparable loss, from the fact that Guttman was the most eminent medical journalist of Germany. Since the foundation of the "Deutsche Med. Wochenschrift," by Paul Borner, in the year 1877, he had been the collaborator and most talented pupil of his editor, and became his successor in the

year 1885. The "Deutsche Med. Wochenschrift," which had already, at the death of its founder, a respected name, became, under Guttman, the leading organ of German medicine, and one of the most eminent of medical journals in the world. Guttman obtained this result by taking a warm interest in all medical questions, and especially by an unusual sagacity in judging of the value of new talent and of new methods. He was the first to recognize the importance of R. Koch's publications, and obtained for his journal the papers on tuberculin treatment. He devoted great attention to the meetings of the Aerztlicher Verein in Hamburg, publishing its meetings, and was thus enabled to make public, before anyone else, the first authentic medical reports upon the cholera epidemic of 1892. He understood how to retain his collaborators by the exercise of great amiability and tact. His successor will have no ordinary task to maintain that journal at the high standard it has reached under Guttman's influence. *Michael.*

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RESULTS OF THE SURGICAL TREATMENT OF
LARYNGEAL PHTHISIS, based on 232 Cases.

By Dr. THEODOR HERYNG, Warsaw.

(Continued from p. 426, Vol. VII.)

FROM circumstances over which I had no control I was unable during 1893 to carry out my intention of presenting to the readers of the JOURNAL OF LARYNGOLOGY the second part of this communication.

The delay has not been without benefit for I can now report some new cases whose cure has been confirmed during the past half-year, and I have had the opportunity of testing on a larger material the usefulness of my new double laryngeal curette.

To the sixteen cases referred to at the end of my paper and arranged in groups I now add four in which the healing has been established for about a year. The following cases come under

Group V.—Cured for one year.

Case 17: Herr P. Kuliczkowski. Laryngoscopic examination made by me in December, 1893, and perfect healing found.

Case 18: F. Majewski. Examined on February 19th, 1894. Larynx perfectly healed.

Case 19: Fräulein Zatorunska. In September, 1893, larynx perfectly healed.

Case 20: H. Skibniewski. Dr. Schmidt, in Odessa, wrote in September regarding cicatrization in larynx. (For details see history of case.)

Although various colleagues have published since 1888 favourable reports of their results obtained by the surgical treatment of laryngeal phthisis, I consider it advisable to describe somewhat more fully a collection of twenty cases, in order the better to elucidate the still vague question as to when the surgical treatment ought to be applied.

The short histories supply the necessary details regarding the general condition of the patient, the extent of the process in the lungs, its localization in the larynx, the description of the operative procedure and its results.

MORE RECENT REPORTS.

Observations I. and II. have already been described in detail.

Observation III.: Sycinski Bronislaw, actor, was admitted to my department in the hospital of St. Rochus on December 20th, 1888. No fever. Well-nourished and strong. Complained of hoarseness, which had developed during the previous five months, of slight dysphagia, and of marked emaciation. Localized infiltration in left apex, with suspicious breath sounds. Slight cough. Sputum scanty, with no bacilli. In the larynx, ulcers of the posterior wall, their edges being covered with pale granulations, left vocal cord thickened and eroded, especially near the processus vocalis. The posterior wall of the larynx was curetted four times, and the excrescences treated with lactic acid. Perfect healing, with clear voice, was obtained. The cure has been established for four years, during which period the patient was under the necessity of following his occupation. In July, 1890, he wrote telling of his complete recovery. Two years later, August 26th, 1892, thus four years after his illness, he was examined by Dr. Lubliner, and the following condition in the larynx noted: Epiglottis normal, ary-epiglottic folds unchanged, left cartilage of Santorini somewhat thicker than right, left vocal cord redder than right, perfect closure of the glottis. Voice clear.

Observation IV.: Lewin Goal, thirty, publican, was admitted to my department on January 5th, 1889, on account of hoarseness. His father died of what was stated to have been cancer of the larynx. The patient was not feverish. He was well-nourished, and his appetite and strength were satisfactory. He complained of cough, pain in the throat, and expectoration. There was tubercular condensation in the right apex, and a few bacilli were found in the sputum. In the larynx there was tubercular infiltration of the posterior wall and of the right ventricular band; the right vocal cord was thickened, eroded, and seemed as if cleft in the neighbourhood of the processus vocalis. The patient was curetted several times, and treated in addition with lactic acid. Complete healing in the larynx, and considerable improvement in the general condition as well as in that of the lungs, was obtained. I saw him eight months later, and found that the healing in the larynx had been maintained, and that the voice was normal. In the apex of both lungs the respiratory murmur was hard without crepitant *râles*. In the left supra-spinous fossa, on the contrary, the breathing was indistinct, and above the left shoulder-blade slightly bronchial. The patient was last examined by Dr. Lubliner, in April, 1892. His general condition was perfectly satisfactory. The respiratory murmur was hard, and expiration prolonged; over the

left shoulder-blade it was loud and blowing. In the larynx the healing was perfect ; on the inter-arytenoid fold there was an uneven, somewhat rough cicatrix. The voice was clear and strong. No cough ; no expectoration.

Observation V. : Joseph Krackowski, sixty-one, was first examined by me on November 3rd, 1889, at that time thin and poorly-nourished, although previously in fair health. In July, 1888, he began to suffer from cough, hoarseness, slight fever, loss of appetite, and marked emaciation. His father died of pulmonary phthisis. In the left apex bronchitis suspected. Dulness and bronchial breathing in the left supra-spinous fossa. In the lower part of the lungs, respiration uncertain ; bacilli in the sputum. In the larynx, chondritis ulcerosa on the right side, and the posterior wall covered with a whitish deposit, the other parts healthy. The inflated right vocal cord was twice curetted, then frequently painted with lactic acid. In two months the healing in the larynx was complete, and a clear voice had been regained. The general condition was considerably improved by a prolonged stay in the country. The process in the lungs has come to a standstill. No cough ; no expectoration. The patient suffers only from rheumatic pains, especially in the feet. The cure has been maintained till quite recently.

Observation VI. : Anna Bolewicz, thirty-four, examined by me for the first time on September 23th, 1890. She complained of hoarseness, laryngeal pain and cough, which had developed during the previous two months. No hereditary taint. Well-nourished, not feverish, strength and appetite fairly good ; circumscribed condensation under the left shoulder-blade. Dr. Lubliner made repeated examinations of the sputum, but could not find bacilli. Larynx—tubercular infiltration of the posterior wall, otherwise normal. Enlarged spleen. Pregnant. Energetic curettement of the posterior wall in November, 1889. Healed in four weeks. Three years later, on January 2nd, 1893, Dr. Lubliner again saw the patient in the hospital, and verified the perfect healing in the larynx. She was then stout and strong. There were traces of old tubercular mischief in the lungs.

Observation VII. : Herr L., Government engineer, forty-nine, was under my treatment for four years. He consulted me for the first time on November 4th, 1887, on account of hoarseness and slight difficulty in swallowing. The patient, of slim build and rather thin, told me that he had been coughing for five years ; that he had contracted syphilis several years before, and that of late he had experienced marked loss of strength. The cough was frequent, with profuse expectoration containing bacilli and elastic fibres. Appetite moderate. Slight fatigue after any exertion. Examination of the lungs revealed extensive condensation in both apices, in front as well as behind, with numerous *râles*. In the right apex a small cavity ; in the left supra-spinous region loud bronchial breathing. In the larynx both false cords were red and swollen ; the right vocal cord was infiltrated, eroded along its free border, and at its posterior end appeared as if cleft. The inter-arytenoid fold was infiltrated and covered with a grey coating. Under local treatment with lactic acid, pretty rapid cicatrization in the larynx ensued, with marked improvement in the

general condition. In July and August the patient made use of the Koumis cure in Stawuta, and in consequence felt much better and recovered his voice. In July, 1889, he was treated with iodide of potassium, on account of a suspicious skin eruption. The general condition was satisfactory. In the lungs I found a slight improvement. A small ulcer appeared on the left vocal cord in October, 1889, which healed after having been painted several times with lactic acid. In September, 1890, there was a recurrence in the larynx. I found a hemispherical ulcerating infiltration on the posterior wall; the anterior end of the right vocal cord was also infiltrated, irregular, and red. The general health had deteriorated decidedly. He lost fourteen pounds in weight. In the evening he was feverish. In December of the same year, after applying lactic acid without success, I vigorously curetted the whole infiltration; this procedure was followed in several weeks by perfect cicatrization. I prescribed creosote pills. In February, 1891, on the 4th and on the 24th, I had again to curette the posterior wall on account of recurrent infiltrations. The healing in the larynx now continued till June; at that date a new ulcer appeared on the arytenoid fold, between the vocal cords. I then used the galvano-cautery, and thoroughly destroyed the whole surface of the ulcer. In the course of three weeks a smooth cicatrix formed, the voice again became clear, and the patient once more repaired to Stawuta. In September he returned to Warsaw, comparatively improved in health, but, unfortunately, not long to remain so. On September 20th I noticed on the posterior wall an indication of recommencing infiltration. On examining the patient by Killian's method, I was convinced that an ulcer which reached to the vocal cords had formed lower down. The infiltrated parts were removed with the curette, and the floor painted with lactic acid. I prescribed iodoform made up in pills, 0·12 to 0·18 gramme daily. The patient was very nervous and weak. The temperature at midday (more rarely in the evening) reached 38·6. A week later he commenced to complain of pain and burning in the palate. On October 28th I noticed three bright red patches on the soft palate; one was as large as a pea, the other two were the size of lentils. The mucous membrane in this region was somewhat swollen, slightly raised, and painful to the touch. On the following day whitish prominences the size of grains of sand, some a little larger, appeared on and between the reddened areas. In twenty-four hours these passed into miliary ulcers which were about 1 millimètre deep. Their edges were sharply marked, their floor pale red. Some of these ran together, others remained single. On the same day I cauterized the ulcers with 80 per cent. lactic acid. Subsequently I applied daily a 1 per cent. solution of pyoktanin, and obtained perfect cicatrization of all the ulcers on November 16th. Dr. Dobrzycki and Dr. Lubliner had an opportunity of examining the patient on that occasion. Cicatrization took place in the larynx in like manner. The voice gained in strength, although the patient was easily fatigued by prolonged speaking. The healing in the larynx and pharynx has been maintained to the present time. As to the nature of the affection, the presence of numerous bacilli in the sputum (the last examination was made in February, by

Dr. Przewoski), and of typical tubercles in the infiltration removed from the posterior wall, speak in favour of its phthisical character. The patient is still under observation.

Observation VIII.: H. Kiedrzyński, forty-three, consulted me on March 28th, 1887, on account of hoarseness and cough. The patient was moderately well-nourished, without fever, and his appetite and strength were fairly satisfactory. The affection lasted about three weeks. His mother and a brother had died of pulmonary phthisis. On examination of the lungs I found dulness and bronchial breathing under the right scapula. Bacilli in the sputum. The posterior wall of the larynx was ulcerated, the left ary-epiglottic fold infiltrated. Under lactic acid treatment a complete cure was obtained in two months, which was confirmed in 1890 by my former assistant, Dr. Wroblewski. In the spring of 1893 I received a communication regarding the condition of the patient from Dr. Dobrzycki, in Stawuta. He informed me that in our patient, whom he had had under observation for ten years, there had been frequent recurrence of the ulceration on the left vocal cord, and on the posterior wall of the larynx during the previous two years, which had easily healed under the lactic acid treatment. No further details were given. I have placed this case amongst those grouped together as cured for four years, because of the relapses within the last two years. Such recurrences, probably, still threaten the patient. I suspect that deeply-situated deposits of isolated tubercles are present in the posterior wall of the larynx, which from time to time produce renewed infection. These could, perhaps, be finally destroyed by active curettement, but the patient has hitherto deprecated vigorous measures.

Observation IX.: Dr. Szczaśny, consultant in the Moscow Military Hospital, became affected with pulmonary tuberculosis in 1887. The family history is suspicious. His father died of phthisis, also two brothers, aged respectively thirty-seven and thirty-four; in their cases the disease was acute. The patient is fifty, of strong build, and comparatively well-nourished. In 1887 he noticed gradual emaciation and loss of strength. At that time also he began to be feverish, and to suffer from severe attacks of coughing. He attributed his state to overwork, and to prolonged scientific and bacteriological studies. This condition continued, with varying temporary improvement, till the autumn of 1889. His voice then became hoarse, and he experienced difficulty in swallowing, which troubled him chiefly from January till March, 1890. In April I saw the patient for the first time. I found the nose and throat healthy. In the larynx there was marked tubercular infiltration of the posterior wall, of both cartilages of Santorini, and of both ary-epiglottic folds. The cartilage of Santorini on the right side was of considerable size, but not ulcerated. The infiltration passed over to the right false cord, was pale red, uneven, not ulcerated, and projected forward like a smooth tumour. The right vocal cord was concealed and invisible. The right ary-epiglottic fold was thickened to almost three times its normal, and passed into the epiglottis, which was also thickened on that side. The true and false cord on the left side were somewhat reddened, and slightly thickened, but not ulcerated. The right half of the larynx did not move. Slight

stridor on exertion. The voice dull and hoarse, at times quite aphonic. Painful paroxysms of coughing, especially in the morning. The mucopurulent sputum contained bacilli and elastic fibres. The morning temperature was almost normal; evening temperature 38 to 38·5°. In the apex of the right lung a chronic somewhat fibroid infiltration. The lung presented the signs of chronic bronchitis. The patient, an energetic and strong-willed man, urged me to adopt active measures.

In five lengthy sittings, undertaken at intervals of about eight to ten days, I removed with the simple and double curette all the diseased parts, namely, the infiltration of the posterior wall, of the cartilage of Santorini, of both ary-epiglottic ligaments, and of the right false cord. The excised pieces, some of which were as large as cherry-stones, more than filled a dessert-spoon.

The right true cord was now visible, and the right half of the epiglottis was freed from its infiltration. The cicatrization of the parts operated on followed in a month after the local curetting. The difficulty in deglutition passed off, the voice became loud, and was somewhat hoarse only after fatigue, the general condition improved visibly, the fever completely left him, as did also the cough. The appetite was good, and the strength rapidly returned. He travelled to the Crimea, and remained there a considerable time. I give below *in extenso* his last letter, dated 17th July, 1893, and also the report on the condition of his larynx by Dr. Hochlein of Moscow.

The latter writes me as follows :—

“ Dear Doctor,—In accordance with your request, I now have the pleasure of informing you of the result of my examination of Dr. S.’s larynx. There are no signs of catarrh. The free edge of the epiglottis near the right ary-epiglottic fold is somewhat uneven in consequence of superficial scars; on the same side in the posterior part of the ary-epiglottic fold, and in front of the cartilage of Santorini, a round, slightly elevated scar, the size of a lentil, is present. The other parts of the larynx appear normal.

“ Yours very respectfully,

“ Dr. HOCHLEIN,

“ Director of the Moscow Military Hospital.

“ Moscow, 14th July, 1893.”

Dr. S.’s letter runs as follows :—

“ Esteemed Colleague,—Enclosed is the report of the examination of my throat made by Dr. H., which thus proves to be perfectly healthy. My lungs are probably cured, for I now experience no symptom of the disease, even the coughing being completely gone. In the early morning there is some muco-purulent secretion, but this is also observed in healthy individuals. I feel myself altogether so well that I can walk every day about ten kilometres without fatigue or difficulty in breathing. This fact is the best indication of the state of my lungs and of the complete cure of the disease. Thanks to your operation, which saved

" my life, I have now been so well for three years and three months as
 " to be able to completely overtake my duties, which are pretty onerous,
 " and to work five or six hours daily.

" Ever yours gratefully, etc.,

" Dr. S."

Observation X. : Frau Seroczynska, of Kiew, thirty-four, consulted me in April, 1890, on account of dysphagia, hoarseness, and cough. She also complained of emaciation, loss of strength, feverishness, and night sweats. Four years previously she had had hæmoptysis. Nothing suspicious in family history. On examination she was found to be anæmic and emaciated. In the apex of the left lung dulness, extending to the third rib. Posteriorly in the supra-spinous fossa dulness and bronchial breathing. Similar changes were found in the right apex, but to a less marked degree. Evening temperature 39.2° . Pulse 100. In the larynx—tubercular infiltration of the left arytenoid fold, of the cartilage of Santorini, and of the posterior wall : the left false cord was much infiltrated and eroded ; the left true cord thickened, its edge irregular and ulcerated ; the right true cord slightly infiltrated. On May 1st the posterior wall of the larynx was curetted, and the infiltration of the left arytenoid fold removed by means of Krause's double curette. In three weeks deglutition was no longer painful. On May 23rd the infiltrated left false cord was excised with the double curette. The ulcers on the true cords were repeatedly treated with lactic acid. Healed in four weeks. The patient spent June and July in Stawuta with Dr. Dobrzycki, undergoing the Koumis cure. This treatment was repeated in 1892. On June 30th, 1892, I saw the patient again for the first time with Prof. Baranowski. In a clear voice she told us that during the previous two years she had felt fairly well ; her nutrition and strength had improved ; she was no longer feverish. She still coughed, however, from time to time, especially in winter. Only in May, 1892, had the lung disease become worse. Coughing, with abundant expectoration, fever, and loss of flesh, had again set in. Bacilli and elastic fibres were found in large numbers in the sputum. In the left apex there were signs of breaking down. The condensation in the right lung had likewise extended. In the larynx the cure was perfect ; the posterior wall was smooth ; on the left false cord there was a distinct scar ; neither infiltrations nor ulcers were anywhere to be seen. The voice was clear. The complete healing in the larynx has lasted three years in this case, in spite of the lung disease becoming worse.

Observation XI. ; A. Solowinski, thirty-nine, merchant, consulted me on June 15th, 1890, on account of hoarseness and dysphagia, which had materially increased during the foregoing months. Recently he had become very emaciated, and had coughed much. He told me that eight years before he had spat blood, and was afterwards very feverish, but had ultimately recovered. On examining the lungs I found rather extensive dulness, with bronchial breathing, and signs of breaking down on the right side in front. Over the left scapula likewise bronchial breathing, with clicking *râles*. In the sputum, bacilli and elastic fibres ;

enlargement of spleen and liver (he had formerly been a devout worshipper of Bacchus). I found the left half of the epiglottis much infiltrated and ulcerated: the larynx was otherwise normal. The infiltrated parts, together with the cartilage, were completely excised with Krause's double curette. Healing followed in three weeks. During treatment the patient's temperature was not above the normal. The dysphagia completely passed off. I showed the patient at a meeting of the Warsaw Medical Society in June, 1890. For a year I have had no news of him.

Observation XII.: This is the case of my colleague, Dr. Thumas, of Janiszki, who began to suffer in May, 1891, from hoarseness and dysphagia. The pain was specially acute on the right side of the throat. It passed off completely in four weeks. In October of the same year a recurrence took place, evidenced by troublesome cough, dysphagia, and hoarseness, which increased from day to day. In November the patient became quite aphonic. During this period he lost fifteen pounds in weight. His strength and appetite, however, were very fair. No fever. Expectoration insignificant, and without bacilli. On examining the lungs I found slight dulness over the right apex in front. In the larynx, diffuse redness of the mucous membrane of the false and true cord. Right false cord infiltrated and like a tumour; the mucous membrane of the posterior wall of the larynx swollen and uneven. Infiltration of the right ary-epiglottic fold and of the cartilage of Santorini, but without ulceration. The right true cord thickened as a whole, and somewhat concealed by the false cord. The treatment at first consisted in rubbing in lactic acid, but without success. On February 20th, 1892, the right false cord was partially removed with the double curette; it proved to be hard infiltrated tissue. The remainder of the thickening was twice energetically burned with the galvano-cautery, then the thickened right true vocal cord was cauterized, and considerable improvement gained. Two months later the voice returned, the dysphagia passed off, and the general condition improved very markedly. On April 9th, 1892, the patient left Warsaw well satisfied with the result. I saw him last on July 3rd, 1892; he had gained in weight, his strength and appetite were excellent, and his voice was clear. There was a distinct scar on the right ventricular band; the posterior wall of the larynx, and both vocal cords were normal, the right being somewhat thicker than the left. The patient's weight had increased from one hundred and sixty-two pounds to one hundred and eighty-five pounds. Subsequently he underwent the Koumis treatment in Stawuta; at the same time creosote, up to six grammes daily, was administered. His last letter of April 21st, 1893, informed me of his continued good health, and of the perfect functional activity of the organs of speech.

Observation XIII.: —, thirty-three, merchant from Bobriejsk, having had a throat affection for two years, came to Warsaw, when the difficulty in swallowing became so great as to interfere with his taking nourishment. The patient related that, along with his throat ailment, fever, cough, night sweats, and progressive emaciation had set in. There was a predisposition to phthisis on his mother's side. For years past the

patient had been liable to bronchial catarrh. Appetite poor, strength feeble. In both lungs, extensive tubercular infiltrations. In the left apex, posteriorly, evidences of softening. Bacilli and elastic fibres in sputum (Dr. Lubliner). In the larynx, large, tumour-like, pale infiltration of the inter-arytenoid region, at its apex, slightly ulcerated. Ary-epiglottic folds somewhat thickened, as also the cartilages of Santorini. True and false cords hidden in their posterior part by infiltration. Vocal cords slightly red. Voice very hoarse and troublesome. On September 25th, 1892, the whole infiltration of the posterior wall was removed, partly with the simple, partly with the double curette. The pieces, which were of considerable size, contained in the small-celled infiltration collections of tubercle, with giant cells and a few bacilli: the epithelium was greatly thickened, sending into the tissue finger-like processes. In the after treatment, a weak solution of lactic acid (20 per cent.) was employed. In four weeks, healing, voice distinctly better, cough less, strength and appetite improved. The patient went to Stawuta, remained there about two months, and was treated by Dr. Dobrzycki, progressive amendment being noted. I saw the patient again only on June 2nd, 1893, with Prof. Baranowski, and confirmed the perfect healing in the larynx, the remarkable improvement in the general condition, and the relative amelioration of the lung affection. Examination revealed dulness over the right clavicle, with doubtful breathing, as also in the right supraspinous fossa, where there was also prolonged expiration. Breath sound harsh over left apex anteriorly, no *râles* behind. In the larynx, a white, smooth scar in the inter-arytenoid fold. True cords normal. Left false cord somewhat relaxed, and slightly covering the true cord. Voice normal: no cough. In the scanty sputum Dr. Lubliner found some bacilli.

Observation XIV.: N. Kopet, twenty-seven, an anæmic and poorly-nourished individual, whose father had died of pulmonary phthisis, sought my advice on April 27th, 1892, on account of cough, hoarseness, and dysphagia. These symptoms had set in two months before, and had been followed by great emaciation and loss of strength. Appetite poor. Cough troublesome. Scanty expectoration, containing bacilli. Right testicle had been removed owing to tubercular disease four months before. After the operation the outbreak of pulmonary tuberculosis had evidently been hastened. Chronic fibroid induration at the apex of the left lung. The posterior wall of the larynx was infiltrated and ulcerated, as was also the left cartilage of Santorini, and the left ary-epiglottic fold. The other parts of the larynx were also unchanged. The affected areas were completely removed with the double curette on June 10th, 1892. Three weeks later, healing had taken place, and there was no longer dysphagia. The voice became stronger, the general condition improved considerably, and the patient being practically cured was dismissed. No recurrence had taken place fifteen months ago.

Observation XV.: Frau Szulakiewicz, thirty-one, a fairly well-nourished, normally-built farmer's wife, came to me on July 7th, 1892, on account of discomfort in the throat, which had set in three years before, and had been followed by gradually-increasing difficulty in swallowing.

Family history satisfactory. Her general appearance aroused no suspicion of phthisis. She coughed a good deal; the expectoration was copious, and contained large numbers of bacilli. For a year there had been loss of flesh and weakness. Night sweats. Recently the temperature had risen to 39°2'. Seven months pregnant. Frequent vomiting. In the left apex rather extensive condensation, especially pronounced behind. On the posterior wall of the larynx there was a tubercular tumour as large as a hazel nut, but not ulcerated. The other parts of the larynx were normal. Voice very hoarse. The tumour was completely removed with the curette, the floor cauterized with pure lactic acid. Healing in four weeks, then a progressive improvement in the general condition. In three months the voice was normal. I saw the patient for the last time in February, 1892. So far as I know, she has had no relapse as yet.

Observation XVI.: Herr P. G., forty, consulted me on January 27th, 1893, on account of great dysphagia. Voice loud, but not clear. Three months before he had felt himself getting weak, beginning to lose flesh, and to be feverish in the evening. On exertion he experienced difficulty in breathing. The emaciated and poorly-nourished patient presented on examination of the lungs symptoms of a chronic tubercular affection of both apices. No bacilli in sputum. In larynx, swelling of left ary-epiglottic fold and of the left arytenoid; posterior wall much infiltrated and ulcerated; left ventricular band infiltrated and but slightly movable; right vocal cord thickened. In three sittings the affected parts were removed with the double curette, and in six weeks cicatrization had taken place. There was afterwards considerable improvement in the voice, and in the ability to swallow.

Observation XVII.: Herr Kuliczowski, forty-three, pensioned officer, was first treated by me on January 21st, 1893. The patient was emaciated and anæmic, and gave the following account of his condition. He was very susceptible to colds. Ten years before he had suffered from pleurisy with exudation on the right side, and since then he had coughed more or less, and had had frequent attacks of hoarseness. During the previous year and a half his condition had become worse. He had specially noted loss of flesh, feverishness towards evening, and difficulty in swallowing. His family history was satisfactory. Examination of the patient revealed suspicious breathing in both apices, bronchial breathing and dulness over the right shoulder-blade. Expectoration scanty; no bacilli. In the examination of the other organs nothing abnormal was detected. No fever. Very nervous, depressed, and complained of sleeplessness. In the larynx, epiglottis normal, infiltration of the ary-epiglottic folds in their posterior parts, as also of the posterior wall, where a crater-like ulcer was visible, chondritis ulcerosa on the left side, right vocal cord tendinous, atrophic and narrow. The voice was very hoarse. The patient was twice curetted, and all the diseased parts were removed with the double curette. Healing followed in a month. Three months later a slight recurrence on the posterior wall of the larynx was removed by curettement. Since then, perfect cicatrization in the larynx; no difficulty in swallowing, voice normal, considerable improvement in the general condition, and in that of the lungs. The pieces removed

with the curette were examined microscopically, and found to have undergone tubercular change.

Observation XVIII.: Herr Majewski, thirty-seven, sacristan, had been very hoarse for six months, and on that account came from Kowno to Warsaw on March 23rd, 1893, to be treated. The patient was fairly well-nourished and not feverish. He complained of loss of appetite and weakness. During the previous five years he had been liable to attacks of hoarseness. Cough and expectoration insignificant. Slight condensation in right apex. In the larynx, chondritis tuberculosa on the right side, and infiltration of the posterior wall. The infiltrations were removed with the double curette, and the affected vocal cord was treated with the galvano-cautery. Some months later the voice became clear. On February 19th, 1894, the patient visited me, and in the presence of my colleagues, Drs. Brunner, Jawdyski, and Rewidzoff, his condition was found to be as follows: In the larynx, complete cure, no trace of ulcers or infiltrations, posterior wall smooth, pale, and elastic, right vocal cord normal, only slightly paler than the left, near the processus vocalis a smooth furrow (scar) visible. Voice strong and clear. Considerable improvement in the general condition, strength, appetite, and appearance. No cough; no expectoration. In the lungs the process had come quite to a standstill. No *râles*. Breath sounds harsh in the right apex and supra-spinous fossa.

Observation XIX.: Fräulein Zatorunska, a well-nourished and robust, although somewhat scrofulous-looking girl, was sent to Warsaw on February 11th, 1893, to be treated by me for hoarseness and pain in the throat. The patient was not feverish. She had had hæmoptysis several years before. No hereditary taint. Her strength was comparatively good, as was also her appetite. In both apices there was slight dulness, more marked on the left side. The respiratory murmur was also indistinct, more especially over the left supra-spinous fossa. Feeble bronchial breathing. In the larynx, pretty firm infiltrations of the arytenoids, of the posterior part of both ary-epiglottic folds, and of the posterior wall—in the last situation they had a tumour-like appearance. The infiltrations were removed with the curette, and the sites thoroughly burned with the galvano-cautery. Cicatrization in three weeks; considerable improvement in the voice. In September, 1893, verified the perfect healing in the larynx.

Observation XX.: Herr Heinrich Skib, fifty, was sent to me in the middle of December, 1892, by Dr. Carl Schmidt, of Odessa, to undergo the surgical treatment for laryngeal phthisis. The case will be described more fully, on account of its chronicity, and the result obtained. The following passages are culled from Dr. Schmidt's letters:—

“Herr Skib is an old patient of mine, in whom I diagnosed in 1889 “commencing laryngeal phthisis in the form of tubercular degeneration “of the left arytenoid. The patient formerly suffered from suppuration “in the left antrum of Highmore, which persisted for years. This was “permanently cured by washing out the cavity for a short period by “means of bent tubes. The larynx has been treated from time to time “with lactic acid, always with good result, as evidenced by cessation of

"pain and diminution of the infiltrations. Signs of generalization of the disease have always been absent. In 1892 the patient was in Italy, under Prof. Massei, who applied iodoform. In the larynx the degenerated parts were a little shrivelled. In August, 1892, pain again set in. At that time the diffuse infiltration in the region of the left ary-epiglottic fold had not taken place. On account of the great pain, he was treated with lactic acid (fifty per cent.), with success. I recommend the patient to you for surgical treatment."

I examined the patient for the first time on December 23rd, 1892. He complained of severe pain on swallowing, difficulty in breathing, and constant irritation in the throat. Troublesome cough. A few bacilli in the sputum. Not feverish. Comparatively well-nourished. Appetite and strength satisfactory. Voice very hoarse. The examination of the lungs revealed circumscribed slight dulness, with bronchial breathing between scapula and spine; in both apices harsh breathing, stronger on the right side. The patient complained of palpitations, and was very nervous. On examination of the heart, hypertrophy of the left side was found, the first sound at apex accentuated, the second dull. In the larynx there was an immense tubercular infiltration of the whole left side; the false cord was pale, infiltrated, irregular, and tumour-like, projecting beyond the middle of the inner fold: the left ary-epiglottic fold, together with the cartilage of Santorini, was changed into a swelling as thick as the thumb, which covered the pyriform fossa on its outer side; the posterior wall of the larynx was arched forward hemispherically; the epiglottis was normal; right vocal cord unchanged, with the exception of slight thickening. The infiltrations of the left half of the larynx were removed with the double curette within three months, at five sittings. In this manner the tumour-like left false cord was excised; the left ary-epiglottic fold reduced to almost its normal size; the necrosed processus vocalis removed from its site, together with the fungous granulations, and the posterior wall converted into a smooth surface. The left vocal cord proved to be thickened, but not ulcerated. In four months the voice became gradually stronger and clearer. Immediately after curettement a two per cent solution of pyoktanin was applied. The thickening of the left vocal cord diminished under the use of lactic acid. The difficulty in swallowing after the operations was insignificant and of short duration, thanks to the pyoktanin, which best prevents reactive inflammation. On May 2nd, 1893, the patient went home well pleased with the result of the treatment. While under my care he was several times examined by Prof. Baranowski, Dr. Jawdyski, and Dr. Dobrski. On September 4th, 1893, I received a note regarding his health, from Dr. Schmidt, of Odessa. He wrote as follows:—

"Condition found on examination on July 3rd, 1893: Instead of the appearances formerly seen (viz., the strikingly tubercular left ary-epiglottic fold swollen to the thickness of the thumb, and with its tubercular infiltration ulcerated to such an extent as to give rise to a deep groove passing towards the interior of the larynx; the tubercular nodulated aspect of the anterior surface of the posterior wall; and, finally, the tubercular left ventricular band swollen up like a tumour), there may

" now be observed : the posterior wall of almost normal appearance ; the
" left ary-epiglottic fold slender, cicatrized, somewhat scaly, freely
" movable, of the same thickness as the non-tubercular right one ; the left
" false cord, which is pretty much at the level of the right one, in front
" covers the left true cord, which is thickened but yet no longer gives the
" impression of tubercular change. The left true cord on phonation
" appears to be normal only in its posterior part. A nodule the size of a
" pea is visible where the posterior wall passes into the lateral part of the
" larynx, possibly of a tubercular nature, and which could have been
" easily removed if the patient had consented. It can also be a question
" of simple inflammatory infiltration. The patient's voice is still hoarse.
" There is no trouble in deglutition. In short, all the manifest foci of the
" disease have been removed, as also his subjective symptoms, and this is
" due to the energetic surgical treatment. I have never seen such a
" result obtained in so short a period by medical, hygienic, and dietetic
" treatment.

"With best regards,

"Yours truly,

"C. SCHMIDT."

Unfortunately the cure in the larynx, gained after so much trouble, has not been long maintained. The patient, regardless of my injunctions, immediately on his arrival in Odessa exposed himself to various injurious influences—over-use of the voice, fatiguing night journeys, with all their harmful consequences—and did not escape. In December, 1893, I received intelligence from Prof. Lourikowski, of Charkow, regarding his condition. The following details are taken from his letter :—

"Herr Skib's condition was up to the present fairly satisfactory. The
"left half of the larynx, which was operated upon by you, shows no sign
"of recurrence. Scars occupy the sites of the former tubercular changes.
"Fresh tubercular deposits have appeared on the right ary-epiglottic fold,
"and on the right arytenoid. Under local treatment (insufflations of
"iodoform) he is improving rapidly..... The general condition of the
"patient is satisfactory, etc.

"Prof. LOURIKOWSKI."

ON THE INDICATIONS AND LIMITS OF TOPICAL TREATMENT IN LARYNGEAL PHTHISIS,

By LENNOX BROWNE, F.R.C.S.E.,

Senior Surgeon to the Central London Throat, Nose and Ear Hospital.

TWENTY years ago, so careful an observer and so profound a reader as Solis-Cohen (1) could not "but ignore the assumption of a special disease, to be called 'laryngeal phthisis,' " and considered that "tuberculous disease confined to the larynx is so rare as to be of doubtful occurrence."

Morell Mackenzie (2) believed that "tubercle appears to play a very
"secondary part, if any part at all, in the production of laryngeal
"phthisis" ; while Von Ziemssen (3) stated "that neither the catarrh nor

"the ulceration of phthisical subjects presents any characteristic signs by which it could be recognized as such, and that the attempts made to establish pathognomic peculiarities cannot be said to have succeeded."

Beverly Robinson (4), of New York, even so lately as 1881, insisted on the non-tuberculous and essentially catarrhal character of the very large majority, if not all, of the laryngeal conditions which are encountered in pulmonary phthisis, and which have a more or less direct relationship with the march of the disease in the lungs.

On the other hand, Virchow (5) had long contended that "the larynx was the most appropriate place to study true tubercle," and many laryngologists felt themselves justified in holding views contrary to those just quoted. It is, nevertheless, not to be denied that there may be an intercurrent tuberculous catarrh of the larynx, though probably with advanced knowledge such cases will become more and more rare.

Gottstein (6) in my humble judgment begs the question when he deduces from the circumstance that, because in one case of pulmonary disease there may be only simple catarrh of the larynx, and in another tubercular infiltration, therefore the laryngeal trouble is non-tubercular. As a fact the one is simply an advanced stage of the other, and there is no reason why a pre-catarrhal stage of phthisis should not obtain in the larynx, as Trousseau long ago pointed out occurred in the lungs. The case which Gottstein gives in illustration of his views in which the middle ear and nares were the sites of tubercular ulceration, while the laryngeal symptoms were only those of aphonia, merely proves that the regions most seriously affected were those of least resistance: and failing a histological report, the mildness of the subjective symptoms in the larynx is no evidence of the non-specificity of the condition they represent.

The possibility of a primary laryngeal tuberculosis was equally long held in doubt, though Friedländer (7), Buhl (8), and others had described a primary laryngeal affection of the nature of a perichondritis preceding pneumonic phthisis, which was held in such circumstances to be secondary to the laryngeal disease.

Even our eminent *confrère* Heryng (9) formerly considered that the so-called tuberculous ulcers in the larynx, etc., do not originate in softened tubercles, but in inflammatory affections of the mucous membrane, and its follicles, with which a secondary miliary tuberculosis in contiguous parts may become associated.

To speak for myself, I have always believed (and so long ago as 1878 (10) expressed that belief in writing) in the possibility of a primary laryngeal tuberculosis, which can be distinguished by the mirror from any other specific ulceration, such as that of syphilis or carcinoma.

Of course later observations, and chiefly the classical case of Demme (11) in 1883, have justified this view of a primary tuberculosis, while the discovery by Koch of the bacillus of tubercle a year previously has afforded a means of placing beyond doubt the specificity of the throat manifestations in tuberculous patients.

All this, therefore, is ancient history, and would not have been referred to, did it not afford encouragement to the hope—albeit it is still considered by many as an over-sanguine one—that not only is the

larynx, as Virchow says, the best place to witness tuberculous changes, but that it is also the most favourable site for treatment which, if only by exception absolutely curative, is at least arrestive, and something very much more than merely palliative.

To go still further. Only so recently as 1880, the general consensus of opinion was enunciated in the classical work of Morell Mackenzie (12), "that the prognosis of laryngeal phthisis is always extremely unfavourable, and it is not certain that any case can ever recover." The excellent results which have attended attempts to cure these ulcers by Schmidt, Heryng, Schrötter, Stoerk, Voltolini, Hunter Mackenzie, Macintyre, Norris Wolfenden, Golynetz, and Gouguenheim—to mention only a few—have tended considerably to modify the prognosis of ten years ago. But this question may now be still further advanced.

I recently heard it stated during a discussion that, no matter what might be the intra-laryngeal treatment employed, it would be successful in proportion to the improvement in the general health and lung condition.

For my part, I am convinced that there are definite and different methods of topical treatment to be adopted in different classes of cases, and that improvement in the general health, and especially in the lung condition, is not always the cause; but on the contrary, very often the direct effect and logical result of the success of the local treatment of the lesions in the upper air passages.

For surely a healthy breath-way is essential, not only to improvement in the general circulation, but also to the arrest of pathological processes in the lungs. And this brings us to the question as to the "indications for topical treatment in laryngeal tuberculosis."¹

Indications for Treatment.—It must be remembered that, clinically, laryngeal tuberculosis presents itself in two forms, the acute and the chronic.

To once again quote Cohen (13): "The earliest recognizable stage of the acute form is almost always manifested by marked congestion of the mucous membrane. The earliest recognizable stage of the chronic, and much more frequent form, is almost always manifested by marked pallor of the mucous membrane." In considering the indications for treatment it is of the greatest importance to ascertain—

- (1) If the laryngeal condition is acute or chronic.
- (2) The stage of the tubercular disease, whether there be infiltration, ulceration, superficial or deep necrosis, or caries of the cartilages, and the development of any new growths.
- (3) The pulmonary condition.

For the laryngeal disease may reach an advanced stage without any evidence of pulmonary disease being detected.

The importance of this cannot be exaggerated in determining the question of local treatment, for the greater number of observers who

¹ The following gentlemen have kindly co-operated with me by forwarding their experience—Dr. Bennett, Leicester; Dr. Walker Downie, Glasgow; Dr. Gordon Holmes, London; Dr. Middlemass Hunt, Liverpool; Dr. John Hillis, Dublin; Mr. Percy Jakins, London; Mr. Wyatt Wingrave, London.

have reported successful results insist on the vital necessity of commencing such topical measures as early as possible, forming their prognosis largely on the question of a co-existence, and the stage of pulmonary disease.

I entirely agree with the views expressed by my colleague Heryng (14) on these points, nor is the subject of the local treatment of laryngeal phthisis a new one with me to-day; for I had the honour to introduce the subject at the British Medical Association in 1887 (15), and at the International Medical Congress of Washington in the same year (16). The table here appended includes my own cases, as well as those furnished by other observers.

THE TREATMENT OF LARYNGEAL TUBERCULOSIS IN RELATION TO PULMONARY DISEASE.

Pulmonary Symptoms.	Cured.	Improved.	Not Improved.	Died.	Total.
None	2	7	5	1	15
Slight (one lung)	6	16	1	1	24
Severe.....	1	8	6	16	31
Both lungs involved	0	3	12	17	32
	9	34	24	35	102

I am bound to say, however, that I can only point to one case in my own practice and that of my colleagues at the Central London Throat, Nose and Ear Hospital where I work, in which a "cure" was effected. This case, which I have noted in my book (17), may be taken as very satisfactory, for since the time when she first came under my care seven and a half years have elapsed, and on this it is further to be remarked that the pharynx, larynx, and one lung were all involved; tubercle bacilli being demonstrated in the scrapings from the granulations and in the sputum, and, indeed, long after the signs in the lung had disappeared. However, on the last occasion when I saw her, about eight months ago, the lung remained quite healthy, she had gained considerably in weight, and no bacilli could be demonstrated in the small portion of sputum which was possible to be obtained from the patient.

With regard to the cases furnished by other observers in which a cure has been reported, I find the average interval between the time the case was first seen to that when the result is recorded is thirty-three and a half months, and in only eight cases is the after-history of sufficiently long a period to justify this desirable end being claimed as assured. It is just this difficulty in obtaining any reliable after-history which strikes at the root of all our assumptions to effect an absolute cure of a tuberculosis, whether it be in the larynx or in the lung, and I fear we neither are now nor ever shall be in a position to write this satisfactory termination in our case-book in any appreciable number of cases, however favourable the

indications may be. I speak more particularly of British observers, for I am well aware that it is more easy to follow up the after-history of cases in continental cities than it is here, where, happily or unhappily as may be considered, sentimental ideas of humanity to a far greater extent control our observations in the interest of pure science.

With regard to the question of the best form of local treatment, I have nothing very new to say, except to protest against a too common idea that curettement is an absolute *sine qua non*. Whether in the acute or chronic form, I believe menthol, or menthol with iodol, in the form of a spray, gives the best results in the pre-ulcerative stage by promoting resolution in the case of a local hyperæmia, and by stimulating the capillary circulation in that of anæmia. It is in the anæmic form that deposit in the inter-arytenoid region is most common, leading to more or less sessile new growth in that situation, and atomized inhalations of the nature described are useful in preventing this development. When there is excessive pain I employ in a spray an ethereal solution of aristol, but morphia insufflations I have never advocated, except in hopeless cases, believing this drug to have an equally pernicious constitutional effect as if administered internally on general principles; but codeia I prescribe largely. Nor do I advise the use of cocaine, except as a preliminary to intra-laryngeal curetting or friction with lactic acid; the drug to be discontinued on the first evidence of improvement under this more active treatment. I have also employed it in advanced cases for the temporary relief of dysphagia.

I have never been an advocate of intra-laryngeal insufflations of powders, and I cannot but think that all remedies are better administered in the form of solutions, and for the most part as sprays under high pressure.

The only exception I make to this method of treatment by sprays is in the application of an anodyne I have long employed, composed of compound tincture of benzoin, compound tincture of camphor, and tincture of belladonna, with which the yolk of an egg is mixed, for the relief of acute dysphagia, the mixture to be employed as a paint immediately before taking food; and in the use of lactic acid, in the application of which all are agreed that considerable force in rubbing the part is required; previous to ulceration, however, this method of application, as well as the drug itself, is productive of harm rather than good.

As a rule, curetting, whether of hyperplastic outgrowths or of ulcerations, is necessary before the lactic acid application is ever really effective, but it is by no means indispensable to perform a scraping on every occasion when this agent is used, one in every four or six being in my judgment sufficiently frequent.

Curetting is indicated in my practice for two purposes:—

Firstly: For the removal of hyperplasia; and I may say that it is very rarely that I employ any other method, even when these excrescences simulate a pedunculated neoplasm.

Secondly: To clear away necrotic matter when the ulcers are large, and for uniting the numerous ulcerative points into one surface when they are, as is generally the case, multiple.

I have not yet been able to satisfy myself that deep punctures into the infiltrated tissues, as advocated by Moritz Schmidt and Rossbach, are of any real service; for such infiltration may exist prior to a development of tubercle, and may be likened to an unresolved pneumonia capable of resolution by the application of menthol, iodol, etc.; moreover, while it is difficult to see how these incisions reduce the swellings, it is but too likely that they lead to ulceration in the case of patients with low recuperative power. Nor do I consider that such infiltration is an evidence of local perichondritis or necrosis, and I have not therefore seen my way to emulate the dexterity with which my friend Gouguenheim extirpates the arytenoid cartilages with his punch forceps; and this, notwithstanding that I heard more than one patient report alleviation of dysphagia as a result of the procedure, for a careful microscopical examination of the two arytenoids which Dr. Gouguenheim having removed from two separate patients in my presence permitted me to take away, did not reveal any morbid changes, and I am constrained to think that where perichondrial or chondrial changes exist the disease would have arrived at a stage not altogether justifying such a procedure.

Dr. Wolfenden (18) has suggested that the important observation of Malcolm Morris, that patients suffering from lupus who had been treated by tuberculin were subsequently more amenable to surgical measures, might be corroborated if tested in the larynx. Experience is required in this direction.

Although my views as regards the value of tracheotomy are still open to conviction, with all respect to the many encouraging reports from trustworthy observers, my personal experience is not favourable to its performance.

For, granting that it gives a greater chance for functional rest to the larynx—a sequence by no means to be taken for granted—this advantage seems to be more than outweighed by the risk of irritation by the presence of a canula, of tissues so strongly predisposed to necrosis, by the difficulty of relief from pulmonary secretions by cough, and, as I have experienced, by the increased obstacles in the way of inspection of the larynx, and consequently of treating it accurately by topical remedies.

My foreign *confères* would be astonished to learn that it is only very recently that laryngeal specialists have received appointments in general hospitals, as well as those solely devoted to diseases of the chest. That the laryngologist of early days centred all his attention on the larynx, without regard to the pulmonary condition, was a reproach never really deserved. But, speaking of Great Britain, I regret to say that it is still common for laryngeal symptoms to be treated without an inspection being first made of the larynx, and there are still but a small number of physicians skilled in auscultation who have any technical knowledge of the use of the laryngoscope, and still fewer those who are qualified to pursue intra-laryngeal treatment, or who possess the requisite dexterity to carry it out.

Hence it is that the increment of the results of the treatment of laryngeal phthisis is so insignificant as compared with that of our continental colleagues.

This contribution represents in a sense the opinions of English laryngologists generally, but I have no *piut* to speak of any but myself.

In conclusion, I cannot forbear, however, from insisting that, however much credit laryngeal specialists may claim for topical measures in the improved treatment of laryngeal tuberculosis, we must in our daily practice bear constantly in mind and put into force those principles of hygienic, climatic, and internal measures, for which we are so greatly indebted to general physicians.

I could have wished, did space permit, to particularly enforce the importance of climatic conditions, for I could report several cases which, failing to gain relief in London, had, under an identically similar local treatment, given satisfactory results in Bournemouth, Torquay, and Hastings; others, which having failed in England, have benefited almost to the extent of a "cure" in South Africa; and still others which have commenced to improve in one part of that colony, have relapsed, and again improved when sent to another and more elevated part of the same favoured country. On the other hand, I have seen patients improve in England who, under similar circumstances of treatment had suffered a relapse in a climate such as represented by the snow-covered plateaux of the Upper Engadine, albeit the lungs have shown symptoms of improvement during their residence in those sites. In fact, I have been forced to the conviction that this class of climate is most unfavourable to cases of tuberculosis, in which the laryngeal symptoms are predominant.

REFERENCES TO AUTHORITIES.

Page.	No.	Name.	Title of Work referred to.
185	1	Solis-Cohen	"Diseases of the Throat and Nasal Passages," p. 499. New York, 1879.
185	2	Morell Mackenzie	"A System of Medicine." Reynolds: London, 1868. Vol. III. Article on Diseases of the Larynx, p. 461.
185	3	Von Ziemssen	"Encyclopædia of Medicine." Vol. VIII., p. 848.
186	4	Beverley Robinson	"The Laryngeal Affections of Pulmonary Phthisis." "Archives of Laryngology." Vol. II., p. 300, <i>et. seq.</i>
186	5	Virchow	"Die Krankhaften Geschwülste," Berlin. Vol. II. 1865.
186	6	Gottstein	"Diseases of the Larynx" (English translation, by McBride), p. 205. Edinburgh, 1884.
186	7	Friedländer	"Ueber Locale Tuberculose. Von Carl Friedländer. "Volkmanns Sammlung." No. 64. Leipzig, 1873.

REFERENCES TO AUTHORITIES—*continued.*

Page.	No.	Name.	Title of Work referred to.
186	8	Buhl	"Lungenentzündung, Tuberculose, und Schwindsucht 12 Briefe an einen Freund." Von Professor Dr. Ludwig Buhl, 2 Verbesserte Aufl München, 1873.
186	9	Heryng	"Histologische und Experimentale Studien über die Tuberculose." Von Dr. Theodor Heryng, in Warsaw, Berlin, 1873.
186	10	Lennox Browne...	"The Throat and Nose and their Diseases." 1st edition, p. 221. London, 1878.
186	11	Demme	"Bericht über die Thätigkeit des Jenner-shen." "Kinderspitals." Berne, 1883. Quoted in "Centralblatt für Laryngol." p. 213. January, 1885.
187	12	Morell Mackenzie	"A Manual of Diseases of the Throat and Nose." Vol. I., p. 383. London: 1880.
187	13	Solis-Cohen	"American Journal of Medical Sciences," January, 1883.
188	14	Heryng	"Journal of Laryngology." Vol. VII., p. 362.
188	15	Lennox Browne ...	"British Medical Journal," 1887. Vol. II., p. 461.
188	16	„ „ ...	"Transactions of the International Medical Congress." Ninth Session. Vol. IV., p. 23.
188	17	„ „ ...	"The Throat and Nose and their Diseases." 4th edition, p. 422. London: 1893.
190	18	Norris Wolfenden	"Journal of Laryngology, Rhinology, and Otology." Vol. VII., p. 397. London: 1893.

NEW INSTRUMENTS, THERAPEUTICS, DIPHTHERIA, &c.

Sattler (Heidelberg).—*Results of Tracheotomy in Croup and Diphtheria.*
"Beiträge zur Klin. Chirurgie," Band 8, Heft 1.

A REPORT upon the statistics of the Heidelberger chirurgischen Klinik of the tracheotomized cases from 1880 to 1890. Of one hundred and sixty-three cases of diphtheria, one hundred and fifty-six have been operated upon, usually by superior tracheotomy, with eighty-one (equal to fifty-one per cent.) cures—a very favourable result. *Michael.*

Galatti (Wien).—*Intubation in Private Practice.* "Wiener Med. Woch.," 1894, Nos. 3 to 7.

REPORT upon some cases in which the author was satisfied with the method. *Michael.*

Rabot. — *Intubation in Croup; Method of Operating.* "Lyon Medical," Feb. 27, 1894.

THE author gives the results of the diphtheritic cases treated in the Charity Hospital in Lyons in 1893. Ninety-three children were attended for laryngeal diphtheria (croup); in thirty-four cases intubation was performed, with eighteen deaths, and sixteen cases were cured. Tracheotomy and intubation was performed in fourteen cases, with eleven deaths and three cures. In forty-five cases only tracheotomy was performed; twenty-six deaths and nineteen cures resulting. He reviews the *technique*, the dangers and accidents of intubation, discusses the indications, and, finally, is convinced that intubation will in future be completely substituted for tracheotomy. *A. Cartaz.*

Schweiger.—*Intubation in Diphtheritic Laryngeal Stenosis.* "Jahrb. für Kinderheilk.," Band 36, No. 3.

THE author believes that intubation can replace tracheotomy in many cases of diphtheritic stenosis. He has intubated six children in the first year of life. Of sixty-eight intubated children thirty-one have been cured—five after secondary tracheotomy. According to the case, intubation may be repeated one to seven times. The tube remained *in situ* between three and one hundred and thirty-one hours. If the diphtheritic process is still present, the tube may be removed if the stenosis is cured. *Michael.*

Wackerle (Wien). — *O'Dwyer's Intubation in the Leopoldstädter Children's Hospital in Vienna.* "Jahrb. für Kinderheilk.," Band 38, Heft 2.

OF seven hundred and eighteen cases of diphtheria (from April, 1891, to July, 1893), one hundred and fifteen were intubated, with forty-eight (equal 41·73 per cent.) cures; intubated and tracheotomized, forty-eight, with eleven (equal 22·91 per cent.) cures; tracheotomized without intuba-

tion, ninety-two, with nineteen (equal 20.65 per cent.) cures. Of all the seven hundred and eighteen cases 61.14 per cent. were cured. The total result shows relatively to the former results from tracheotomy no remarkable difference in the mortality of the disease. *Michael.*

Eschbaum (Bonn).—*Two New Oral Dilators*. "Monats. für Aerzte Polyk.," 1894, No. 1.

DESCRIPTION of a hard rubber dilator and an improved Whitehead gag. *Michael.*

Guillaume.—*Nasal Speculum*. "Union Med. du Nord-Est," 1893, No. 12.

SELF-RETAINING speculum. Modification of Duplay's instrument, with elastic band. *A. Cartaz.*

Schmid, Anton (Tuttlingen).—*New Tonsillotome*. "Monats. für Aerzte Polyk.," 1894, No. 1.

MODIFIED Fahrenstock instrument. *Michael.*

Plummer, S. W., and Robinson, R. (Durham).—*Case of Death under Chloroform*. "Lancet," Oct. 7, 1893.

CHLOROFORM was administered to a patient aged sixty-three, for the removal of an intra-nasal growth. After the operation, and as he was being carried back to the ward, the breathing suddenly became shallow and ceased, and the pupils dilated. In spite of artificial respiration, tracheotomy, hypodermic injection of ether, etc., life could not be preserved. There was no pathological condition found *post-mortem* to account for death. *Dundas Grant.*

Dabney, W. C.—*The Administration of a Glycerine Solution of Mercuric Chloride as a Prophylactic Measure against Diphtheria*, "Med. News," Feb. 17, 1894.

THE solution allows of a dose of one-ninety-sixth to one-sixtieth of a grain being easily measured, and this is given every three hours.

R. Lake.

McCullom, J. H.—*Remarks on Diphtheria*. "Boston Med. and Surg. Journ.," Feb. 1, 1894.

THE average-death rate in Boston from diphtheria is placed at 29.42 in the last decade. The author then gives the methods of culture and cover-glass preparations for diagnosis, urging their universal use.

R. Lake.

Vulpis (Heidelberg).—*Critical Remarks and Practical Experiences with Anti-Diphtherin Klebs*. "Deutsche Med. Woch.," 1894, No. 6.

THE author reviews Klebs' own experiments, and proves that in no case is anything unusual observed, or what is not observed in other cases. He then reports upon twenty cases in which the medicament has been applied in the Heidelberg clinic. In no case was anything observed which would show a specific influence of the treatment. The details can be seen in the original. Fifty per cent. of cases died. The mortality of

diphtheria in the Heidelberger clinic was considerably less during the last ten years. The only favourable thing that could be said of Klebs' anti-diphtherin is that the mortality is not increased in any great degree.

Michael.

Morse, J. L.—*A Bacteriological Study of Four Hundred Cases of Inflammation of the Throat, occurring in Diphtheria and Scarlet Fever, with especial Reference to Pathogenesis.* "Boston Med. and Surg. Journ.," Feb. 15, 1894.

THIS paper contains all the known work in this department, and a series of tables of mortality, etc., some of which are given here. K.L. stands for Klebs-Loeffler bacillus.

Mortality in four hundred cases.....	34 per cent.
" " all cases containing K.L.	41 "
" " " not containing K.L.....	23 "
" " " without scarlet fever	36 "
" " those cases which contained K.L. ...	41 "
" " " which did not contain K.L. .	25 "
" " all cases complicated by scarlet fever	26 "
" " those cases containing K.L.	43 "
" " " not containing K.L.	21 "

The question of the influence of other micro-organisms on the action of K.L. bacillus is dealt with in a very able manner, but can scarcely be considered complete, for the author says the small number of organisms found was probably accounted for by the short incubation permitted, and the media used for cultivation not suiting all varieties.

Streptococci occurred in 48 per cent., staphylococci in 74 per cent., diplococci in 13 per cent., bacilli in 22 per cent.

Mortality, K.L. alone	43 per cent.
" K.L. with streptococci	28 "
" K.L. with staphylococci	46 "
" K.L. with strepto- and staphylococci	38 "

but twenty-five cases examined with great care, all containing Klebs-Loeffler bacillus, were found to contain one or other of the various cocci—twelve containing two or more. The bacillus of diphtheria was found, in one case, thirty-one days after the membrane had disappeared. The pseudo-bacillus is discussed, but no new light is thrown upon it. The paper is one well worthy of perusal.

R. Lake.

NOSE AND NASO-PHARYNX.

Gerber.—*Nasal Tumours.* Verein für Wissenschaftliche Heilkunde in Königsberg.

Meeting, Jan. 8, 1894.

THE author spoke of tumours of the nose, and showed drawings of tumours operated upon by him; a specimen of a fibroma, and drawings of nasal syphilis and tuberculosis.

Michael.

Wurtz and Lermoyez (Paris). — *The Germicidal Property of Nasal Mucus.* "Lancet," Oct. 7, 1893.

EXPERIMENTS in proof of this important property were described before the Société de Biologie, July 15th, 1893. *Dundas Grant.*

Dunn, J.—*A Case of Cystic Tumour of the Floor of the Nose.* "New York Med. Journ.," Feb. 24, 1894.

A CYSTIC tumour of the floor of the nose containing clear fluid; no connection with a tooth, and was considered a retention cyst. *R. Lake.*

Richardson, S. W.—*A Case of Myxo-Sarcoma.* "Annals of Ophthal. and Otol.," Jan., 1894.

THIS was a growth of rapid development in a boy aged five. It was removed by Billroth's operation for resection of the superior maxilla; but as the growth involved the antrum, it, together with part of the palate and pterygoid plate, was removed. Its origin was apparently the middle turbinate bone. Recovery was speedy, but six weeks later recurrence had been so rapid that the tumour was as large as before operation, with extensive glandular involvement, death occurring four months after the operation. The tumour contained, besides myxo-sarcomatous elements, a quantity of striated muscle fibres. *R. Lake.*

Hopman (Köln).—*Ozæna Genuina.* "Münchener Med. Woch.," 1894, No. 3.

A POLEMICAL article concerning and contrary to Grünwald's views on ozæna. The author believes that the shortness of the septum and the breadth of the nasal cavity are the cause of ozæna, and that such a genuine ozæna exists without any carious process. But he agrees with Grünwald that in some cases the factor may be produced by caries of the nose and the accessory cavities. He acknowledges the great merits of examination with the probe, recommended by Grünwald, and has often applied this method with great advantage. *Michael.*

Hajek (Wien).—*Letter to Grünwald in München.* "Wiener Med. Woch.," 1894, No. 4.

POLEMICAL article concerning the views of Grünwald upon the etiology of ozæna. The author does not agree that caries is the usual cause of ozæna. Examination with the probe, as practised by Grünwald, cannot prove anything, because, if the probe touches the cells of the ethmoidal bone, bone is always felt, and it is impossible to say if these bones are carious. If caries is so frequent, it is remarkable that Zuckerkandl, who has made so many anatomical researches, has never found it. *Michael.*

Bishop, S. S.—*A New and Successful Treatment of Hay-Fever.* "Med. News," Feb. 14, 1894.

HAY-FEVER is said by the author to be due to an excess of uric acid in the blood, and he quotes several authors, together with Haig, to show various somewhat parallel instances of uræmic irritations. For treatment he uses especially mineral acids. Acid sulphuric dilutum ten to thirty minims three times daily, and acid phosphate of soda in doses of one or

two teaspoonsful, and the importance of a dose taken at the moment of waking is insisted on. As preventible treatment, salicylate or phosphate of sodium is given for about forty days before the usual time of the onset of the malady, but not during the attack. The author then gives a brief review of the views held by a number of physicians respecting the malady, and finally says he uses the galvano-cautery when indicated.

R. Lake.

De Roaldes, A. W.—*Alarming Epistaxis of Grippal Origin.* "Med. Rec.," Oct. 14, 1893.

THE chief characteristic of these cases was their alarming nature: the seat of hæmorrhage when localized was always in the posterior third of the nasal cavity, which was always stenosed by spurs and hypertrophy of the inferior turbinated antero-posterior plugging, for suppurative otitis media occurred in one case in which posterior plugging was resorted to.

R. Lake.

Chappell, W. F.—*Short Notes of Unusual Cases.* "Annals of Ophthal. and Otol.," Jan., 1894.

THE first, a case of membranous rhinitis, followed by polypoid degeneration of the mucosa.

The second, a case of myxo-fibroma of the inferior turbinated bone.

The third, a case of left anosmia and parosmia, caused by an enlargement of the anterior extremity of the inferior turbinated bone.

The third, a high temperature (101° at night) with burning pain, periodic in character, in the left tonsil, ear, face, sterno-mastoid, and subsequently also in the left arm and leg, in a neurotic female, after an abscess of the tonsil on that side.

The fourth, a case of laryngeal vertigo, caused by amputation of the uvula, and a still more severe attack after a simple application to the throat, necessitating the use of Paequelin's cautery to restore consciousness.

R. Lake.

Harris, T. J.—*A Case of Traumatic Epilepsy relieved by Operation on the Nose.* "Annals of Ophthal. and Otol.," Jan., 1894.

THE epilepsy manifested itself after a blow on the nose in a boy of sixteen years, and no medicinal treatment was of any avail. The cartilaginous septum was dislocated to the right, the vomer and perpendicular plate fractured and thickened, these together occluded the right nostril. These deformities were remedied by a preliminary removal of a spur, a fit following shortly afterwards; the septum was then broken up, and maintained in place by a Behrens splint. The operation was done nearly a year after the accident, and effected a completed cure.

R. Lake.

Collier, Mayo (London).—*Acute Abscess of the Left Frontal Sinus simulating Orbital Cellulitis.* "Lancet," Jan. 27, 1894.

THE patient complained of severe pain and swelling in the left orbit. The eyeball was displaced downwards and outwards, and there was inflammation of the parts round the eye. The nasal passages were the seat of chronic obstruction. Pus was evacuated from the swelling by

incision, and a small hole just behind the trochlea was detected by means of a fine probe. This opening, which led into a suppurating and denuded frontal sinus, was enlarged and made to communicate freely with the nose.

Dundas Grant.

Bates, W. H.—*A New Method of Treatment of Chronic Naso-Pharyngeal Catarrh.* "Med. News," Jan. 20, 1894.

THE author suggests the employment of injections through the nasolachrymal duct. A special syringe made of glass, with a very fine and gradually tapering point, is used, and the injections are made two or three times a week. Many fluids were used for injection, but the one which seemed to give greatest relief was sweet oil. [The author explains the beneficial result as due to some effect upon the nervous system. This is, however, a somewhat vague and indefinite statement.—E.D.]

W. Milligan.

Mansell, Moullin C. (London).—*Osteoplastic Resection of the Superior Maxilla for Naso-Pharyngeal Polypus by a Method hitherto undescribed; Remarks.* "Lancet," Sept. 30, 1893.

IN this operation the hard palate was cut through antero-posteriorly to one side of the middle line, and the superior maxilla was severed below the orbit from the upper part of the opening for the anterior nares to the posterior border above the tuberosity. The appropriate skin incisions had been previously made, and the muco-periosteal covering of the hard palate had been turned back in a flap. The lower portion of the maxilla, with the inferior turbinated bone, was prized away and turned outwards along with the soft structures of the cheek-flap. The site of origin of the tumour from the internal pterygoid plate was thus freely exposed.

Dundas Grant.

TONSILS, PHARYNX, &c.

Anclair. — *Angina of Acute Articular Rheumatism.* "Bulletin Medical," Feb. 18, 1894.

IN the great majority of cases of acute rheumatism pharyngitis can be observed; in general it appears two or three days before articular manifestations—sometimes, but more rarely, in the course of the disease. This angina is characterized by some diffuse redness of the margin of the soft palate, the tonsils, and the posterior part of the pharynx; now and then an œdematous tumefaction of the uvula or other part of the mucous membrane is present. This redness and inflammation extends over the whole of the fauces, or is confined to one side. Dysphagia, pain in the ears, and difficulty of speech exist, as in other forms of angina. These symptoms diminish as soon as the articular manifestation appears, but the pain and the redness decrease slowly during seven or ten days. Generally the intensity of the pharyngitis is proportionate to the gravity

of the rheumatismal affection. The author debates the differential diagnosis from scarlatinal, syphilitic and other forms of angina.

A. Cartaz.

Solis-Cohen, J.—*Sarcoma of Tonsil—Evulsion through the Mouth.* "Med. News," Jan. 27, 1894.

THE patient, a female aged fifty-eight, had complained of a tumour in the tonsil for the last three years and a half. The growth had advanced rapidly for six months previous to the patient's visit to the author. The mass was about the size of a hen's egg, and was almost entirely covered by a distended and adherent soft palate, a small portion of the tonsil being exposed at the inner surface. The tumour extended quite up to and upon the surface of the hard palate, while its extreme circumference could not be delimited by the finger forced up behind the soft and hard palates. There was no glandular enlargement. There was no pain, but slight dysphagia and some impairment in voice and in articulation. Histological examination showed the growth to be a sarcoma. The growth was removed with the patient in the sitting posture, after cocaine had been freely used. The soft palate was divided with the cautery knife so as to expose the growth vertically. It was found to be adherent to the periosteum of the palatine process of the superior maxilla. Hæmorrhage was arrested by compression. After removal the parts were freely rubbed with undiluted lactic acid. No stitches were put in. The patient made a rapid recovery.

W. Milligan.

Wagner, Clinton.—*Sarcoma of Tonsil (Patient eighty-nine years of age); Operation; Cure.* "The Medical Record," Feb. 3, 1894.

THE patient, a female aged eighty-nine, came to hospital complaining of a swelling in her throat, which she stated was rapidly advancing. On examination, the right tonsil was found enormously enlarged, extruding inwards to the uvula, pressing the soft palate upwards and backwards, and extending downwards to the base of the tongue. The colour was dark purplish red. The patient complained of sharp lancinating pain shooting through the mass, and also of great dysphagia. The mass was encircled by a galvano-cautery loop and removed without difficulty. The entire surface between the pillars was then thoroughly seared with a cautery point. In ten days healing had taken place, and the patient was discharged. When seen ten weeks after the operation the parts had a healthy look, no pain was complained of, and the patient appeared strong and well.

W. Milligan.

Chappell, W. F.—*Case of Chancre of the Tonsil.* "The Medical Record," Jan. 27, 1894.

THE patient, a man aged thirty-two, complained of burning pains in the left side of the pharynx and ears, especially severe at night, and accompanied by profuse perspirations. The left tonsil was found enlarged, and very hard at its upper part. Its surface was red, and a small superficial, greyish-looking ulceration was found at the superior end of the tonsil. Another small superficial ulceration was found upon the anterior surface of the soft palate. The surrounding tissues were moderately congested

and hard to touch. The left submaxillary gland was enlarged. Primary chancre of the tonsil was diagnosed, and two-grain tablets of hydrargyrum cum cretâ given every two hours, with a soothing gargle, and a hot bath every night.

Three days later a macular rash appeared upon the neck, arms, chest, and back.

Fourteen days after the commencement of the treatment the sore upon the tonsil and soft palate had healed. *W. Milligan.*

Ward, W.—*New Ideas with reference to two well-known Operations.* "Med. News," Feb. 17, 1894.

THESE two operations are tonsillotomy and amputation of the uvula. For the former he recommends a new tonsillotome cutting from behind forwards, with a pointed blade capable of grasping the tonsil, also the practice of injection of cocaine and iron into the tissue previous to removal. A new uvulotome is also described, which consists of forceps and scissors combined. The uvula is described as having an important function in voice production in "the singing of tones that issue in the same degree from both nose and mouth" when the uvula is poised midway between the pharyngeal wall and the back of the tongue, and in high notes steadying the soft palate by forming a projection resting against the pharyngeal wall. *R. Lake.*

Johnson, W. B.—*Tonsilliths.* "Annals of Ophthal. and Otol.," Jan., 1894.

THE patient, a man aged sixty-five, of a gouty and rheumatic history, coughed up several hard calcareous bodies, followed by hæmorrhages. These were found to come from the tonsils; they were removed and found to be similar to those expelled by coughing, and after their removal the attacks ceased. *R. Lake.*

Jagot.—*Five Cases of Angina with Leptothrix.* "Bulletin Soc. Med.," Angers, Oct. 4, 1893.

Two observations of pharyngo-mycosis. Nothing new. *A. Cartaz.*

Rethi (Wien).—*Disseminated Fibrin Infiltration in the Pharynx following Influenza.* "Wiener Med. Woch.," 1894, No. 1.

THE author has observed in patients affected with influenza little round epithelial plaques upon the soft palate and the tonsils. The plaques persisted for some days, and then disappeared. He believes that they are thickened portions of the epithelium. *Michael.*

LARYNX.

Wright, Jonathan.—*Some Critical and Desultory Remarks on Recent Laryngological and Rhinological Literature.* "New York Med. Journ.," Feb. 24, 1894.

NOTHING original.

R. Lake.

Ringier.—*Hysterical Mutism lasting Fifteen Months.* Gesellschaft der Aerzte zu Zurich. Meeting, Dec. 9, 1893.

A GIRL, twelve years old, had lost her voice from sudden excitement. She could only utter some unintelligible words. The symptoms had lasted fifteen months when the author saw the patient. He could easily obtain deep hypnosis, but it was not possible to make her speak whilst it lasted. The author then made the suggestion that she should speak some days later. She did so, and was cured. *Michael.*

Turner, W. (London).—*A Case of Tracheotomy in which a Dangerous Complication ensued upon the use of a Double Celluloid Tube.* "Lancet," Sept. 30, 1893.

ON one occasion the removal of the inner tube failed to relieve the dyspnoea, and it was found that the outer tube had become detached from the guard piece. It had been sucked down, and was only reached after further enlargement of the tracheal wound and inversion of the patient. *Dundas Grant.*

Kobler.—*Laryngeal Scleroma.* Gesellschaft der Aerzte in Wien. Meeting, Jan. 26, 1894.

EXHIBITION of a patient, twenty-four years old, suffering from laryngeal scleroma. *Michael.*

Preobrasenzki.—*On Foreign Bodies in the Respiratory Passages.* "Wiener Klinik," 1893, Nos. 8 to 10.

THE author begins with literary statistics, then follows an experimental portion, and he concludes with casuistics. These deal with eight hundred and forty-eight cases collected from literature. Two hundred and forty-five cases operated upon externally have been cured, and ninety-one died. Of fifty-five endo-laryngeally operated cases, forty-seven have been cured and one died, the result of the other cases being unknown. Twelve cases were treated by the declined position, which were all cured; by emetics ten were cured and two died. Of cases not treated, one hundred and sixty-nine were cured and one hundred and eighty-six died. Of seventy-eight cases nothing was known. Of the treated cases the mortality was twenty-three per cent.; of the non-treated cases, fifty-two per cent. [It must be stated that these statistics cannot possibly be correct, because of the non-treated cases the greater proportion of cures do not come under the notice of surgeons, and only occasionally are recorded; the cases with fatal ending will, however, nearly all come under medical notice.—AEST.] The greater number of all foreign bodies are beans (forty-two per cent.) and bones (thirty-eight per cent.). Concerning the locality: of foreign bodies in the larynx there were sixty per cent., in the trachea sixty-seven per cent., in the bronchi forty-five per cent. cured. Experience shows that the foreign bodies cause great destruction, and should therefore be removed as soon as possible.

Michael.

Hunt, Middlemass (Liverpool).—*Multiple Papillomata of Larynx; Tracheotomy; Removal of Growths by Intra-Laryngeal Operation; Cure.* "Liverpool Med. Chir. Journ.," Jan., 1894.

CASE of a boy aged fourteen, shown at the Liverpool Medical Institution two years after operation. Patient had an excellent voice, and there had been no recurrence of the growths. *Middlemass Hunt.*

Paul, F. T. (Liverpool).—*Two Cases of Sarcoma of the Larynx, with Remarks on the Nature of the Growth.* "Liverpool Med. Chir. Journ.," Jan., 1894.

Case 1: A boy aged twelve, in whom symptoms of eight months' duration at last demanded tracheotomy, was found when examined by Dr. Hunt to have a large growth completely filling the larynx. The supra-glottic portion was removed by means of Mackenzie's cutting forceps, and found to be sarcomatous. Mr. Paul then by a thyrotomy completely removed the growth. There had been no recurrence when last seen, five months after the operation.

Case 2: One of extrinsic sarcoma in a girl aged twenty. Symptoms of increasing difficulty in breathing and swallowing, extending over two years. Dr. Hunt found the lower pharynx filled by smooth, pale, rounded growths, springing from the posterior wall and right pyriform sinus. The larynx was quite free of growth. Externally a fulness was noticeable on the right side of the neck, between the sterno-mastoid and the larynx, and one or two nodules could be felt, which seemed to be enlarged glands. A portion of the pharyngeal growth was removed by Dr. Hunt, and when examined microscopically was found to be a spindle-celled growth, and "regarded as of an almost or altogether innocent nature." It was decided to cut down on the portion to be felt externally, by an incision along the sterno-mastoid. On doing so, the difficulty in breathing became very great, and a hurried tracheotomy had to be performed. The growth was then found to be too extensive for removal, and the operation had to be left uncompleted.

Mr. Paul gives an interesting description of the microscopical characters of the growth, for which the reader is referred to the original article. *Middlemass Hunt.*

NECK.

Gernet. — *On the Increase of Goitre in the Eastern Maritime Provinces.* Gesellschaft Holländischer Aerzte in Dorpat. Meeting, Sept. 1, 1893. STATISTICAL report. *Michael.*

Putnam, J. J.—*Recent Observations on the Functions of the Thyroid Gland and the Relation of its Enlargement to Graves' Disease. Also Remarks on the Therapeutic Use of Sheep's Thyroids, and other Organic Extracts.* "Boston Med. and Surg. Journ.," Feb. 15, 1894.

A CAREFUL summary of the literature on the subject up to the present date, but containing no new material. *R. Luke.*

Stockmann.—*Contribution to the Operative Treatment of Morbus Basedowii (Graves' Disease).* Verein für Wissenschaftliche Heilkunde in Königsberg. Meeting, Jan. 8, 1894.

A PATIENT, twenty-six years old, had exhibited for two years the symptoms of the disease, which had increased very much latterly, so that she was not able to work. The superior thyroid arteries, and some weeks later the inferior thyroid arteries, were ligatured, but without any effect. The left side of the goitre was then extirpated. Since this time the patient has much improved, the steno-cardiac attacks have ceased, the body weight has increased twenty-one kilogrammes. The patient can now do her work. The microscopical examination showed the condition to be colloid struma.

MESCHÉDE had observed the case with the author, and confirmed the statement that the patient is now, some months after the operation, perfectly cured. *Michael.*

Brial.—*Abscess of the Anterior Part of the Neck penetrating into the Larynx.* Soc. d'Anatomie de Bordeaux, Feb. 12, 1894.

A PATIENT, returning from Gabon, came to Prof. Vergely's clinic on February 3rd, considerably emaciated, breathing with the greatest difficulty. He died as soon as he entered the hospital. At the necropsy there was found diffuse abscess of the neck, penetrating through the thyro-hyoid membrane into the larynx and bronchi and the superior part of the mediastinal cavity. In that region were also found large lymphatic glands compressing the arch of the aorta, the trachea and the bronchi.

A. Cartaz.

EARS.

Lautenbach, L. J.—*An Ear Screw for the Removal of Foreign Bodies.* "Med. News," Jan. 27, 1894.

THE screw is a double-headed one, that is, a two-threaded screw. The pitch is considerable, and the threads prevent an angle forwards, the posterior surface of each thread being at right angles to the shaft. The screw is, upon the slightest twist, easily sent into any substance, such as wood, etc. After it has made its way into any substance it will not slip out, owing to the posterior surface of the thread being at right angles to its shaft. The author advocates its use only after futile attempts have been made to dislodge the foreign body with the syringe. *W. Milligan.*

Cozzolino (Naples).—*Remedy employed only for Infectious Local Pyogenic Processes in the Ear.* "Ann. des Mal. de l'Oreille, etc.," Nov., 1893.

THIS is chloride of sodium, ten to twenty-five per cent. solution, for injections into the tympanum. The results obtained have been very satisfactory, and not less rapid than with other antiseptics. *Joal.*

Randall, B. A.—*The Statistics of Ear Disease.* "Annals of Ophthal. and Otol.," Jan., 1894.

THE statistics are based on analysis of four thousand seven hundred and eighty-five patients, presenting five thousand four hundred and twelve diseases, and are most carefully and minutely drawn up: they are well worthy of a careful study, but are too long to publish *in extenso*, and it is not possible to condense them without rendering the abstract valueless.

R. Lake.

Thorner, Max.—*Pathological Conditions following Piercing of the Lobules of the Ear.* "The Journ. of the Amer. Med. Assoc.," Jan. 27, 1894.

THE author remarks that the custom of piercing the ears is a barbaric custom, not only on account of its origin, and the crude methods by which it is practised, but more especially because troublesome and even fatal consequences have been observed to follow this procedure. As instances of injurious effects which at times follow the operation he records three cases of erysipelas of the auricle and face, one in a child of two years old, and two cases in adults. In two cases of cleft lobule the clefts were readily repaired by Knapp's operation—paring the edges and stitching the small flap left on the posterior lip over the corresponding portion of the anterior lip, thus avoiding a notch in the lobule.

Among tumours of the auricle the author has observed a fibrochondroma, a fibroma, and a keloid.

W. Milligan.

Scholefield, R. E. (London).—*Cholesteatoma of the Auditory Canal caused by a Bug.* "Lancet," Oct. 14, 1893.

A PATIENT, convalescent from scarlet fever, complained of pain in the ear. The ear had previously been syringed for the removal of wax, and Dr. Scholefield was able to see a characteristic pearly-white mass occupying the meatus, having in its centre a small brown object, a specimen of *cimex lectuarius*. The mass was made up chiefly of epithelium and fat. No cholesterine was found. Dr. Scholefield suggests that the growth was occasioned by the irritation set up by the bug. [These external cholesteatoma seem to have been much more common in old days, if we may judge by the large number in the Toynbee collection.—ED.]

Dundas Grant.

Hotz, F. C.—*A Mosquito Bite in the Membrana Tympani.* "Annals of Ophthal. and Otol.," Jan., 1894.

THE insect had been killed in the canal by the patient with water, and was removed; the lower half of the anterior portion was occupied by a deep blood-red blister.

R. Lake.

Seiss, R. W.—*The Treatment of Tinnitus in Aural Sclerosis.* "Annals of Ophthal. and Otol.," Jan., 1894.

THE author speaks strongly against the removal of the ossicles for this trouble, and states that he obtains good results from treatment either by menthol vapour or by menthol or camphor in alcohol, in the proportion of one-half to two grains per ounce; also in some cases from freezing by means of ethyl-chloride over the branches of the posterior auricular

and stylo-mastoid arteries, thus directly influencing the vascular supply to the tympanic cavity.

R. Lake.

Randall, B. A.—*The Cases suitable for Excision of the Drumhead and Ossicles.* "Therapeutic Gazette," Feb., 1894.

THE author, after carefully contrasting the results of published cases and his own work, says the cases suitable are a small group including a few catarrhal cases and only some of the really obstinate suppurations.

R. Lake.

Bell, C. E. W. (Exeter).—*Middle-Ear Disease; Cerebral Abscess; Operation; Recovery.* "Lancet," Oct. 28, 1893.

A WOMAN aged twenty-two was admitted in a comatose condition. She had had scarlatinal otitis when five years old. For some time she had been getting pale, and before admission had had pain in the left side and back of the head, and several fits. Pulse was slow (56), and temperature normal. The brain was explored; pus found, and evacuated. Recovery followed.

Dundas Grant.

Sainsbury and Roughton (London).—*Cerebral Abscess due to Otitis Media; Remarks.* "Lancet," Sept. 16, 1893.

A MAN aged fifty, of intemperate habits, had had a discharge from the left ear since his youth. On August 5th, after exposure to cold, deafness and vomiting, and on the 10th a convulsive fit, followed by unconsciousness for some hours, were the earlier symptoms. On recovery, had loss of memory, and at one time aphasia. He was admitted on the 12th with moderate fever (101-2° F.), which fell next day to normal. In a few days there was pain and slight rise of temperature, and the tympanum was scraped, but without preventing the patient from getting worse. Temperature rose, cerebral symptoms increased, and the patient died before the proposed operation was performed. On *post-mortem* examination the dura mater was found to be slightly raised over the roof of the tympanum, and there was a large temporo-sphenoidal abscess. There had been no decided optic neuritis, and no sign of mastoid disease.

Dundas Grant.

Frankhauser, F. W.—*Otitis Media Purulenta.* "The Times and Register," Feb. 3 and 10, 1894.

A FAIRLY complete summary of the salient points of etiology, symptoms, complications, and treatment.

R. Lake.

Bacon, G.—*A Case of Acute Suppurative Otitis Media, characterized by High Temperature and Symptoms of Brain Complication; Operation; Recovery.* "Annals of Ophthal. and Otol.," Jan., 1894.

THE temperature rose to 105.5° Fahr., and at one time there was choking of the optic discs. All cleared up after incision of Schrapnell's membrane and Wyld's incision.

R. Lake.

Marsh, F.—*Chronic Suppurative Otitis Media; Aneurism of Internal Carotid Artery; Ligation of Common Carotid Artery.* "Birmingham Med. Review," Feb., 1894.

THE patient, a female aged twenty-seven, had facial paralysis eight years ago, and otitis media suppurativa since that time. She now came

with a tumour three and a half inches in the vertical and three inches in the horizontal diameter, tense, pulsatile and circumscribed, with distinct *bruit*. It extended from the angle of the jaw to the tragus. The diagnosis was an aneurism of the internal carotid artery, due to an extension of the aural condition to the coats of the vessel. The common carotid was ligatured, pulsation returning temporarily a few minutes afterwards. The tumour continued to decrease and harden. Seventeen days after the operation the tumour was three inches in the vertical and two inches in the horizontal diameter, but did not appear quite cured on December 8th, *i.e.*, it seemed to vary in size. R. Lake.

Raoult, A.—*Median Suppurative Otitis, with Fly-Larva in the External and Internal Meatus.* "Revue Med. de l'Est," Feb. 1, 1894.

A CHILD, seven years old, had suffered from bilateral suppurative otitis for a long time. After syringing the meatus the author found in the water a compact ball, yellowish, firm, and composed of pus, epithelial cells, and two larvæ of flies (*Muscida lucilia* and *Muscida sarcophaga*). There was perforation of the tympanum. Treatment by washing with sublimate solutions, carbolic, glycerine, and, some days after, boracic dressing, ended in recovery. A. Cartaz.

Tansley, J. O.—*Acute Suppuration of the Tympanum after an Operation upon the Vault of the Pharynx, followed by Acute Inflammation of the Attic with Cerebral Symptoms.* "Arch. of Pediatrics," Feb., 1894.

AFTER removal of post-nasal adenoids the patient developed acute suppurative otitis media. The next day the temperature went up to 104° Fahr., and the pulse 120, accompanied by great headache and restlessness, and pain in the ear. A few hours later there was bulging in the posterior superior quadrant, which was incised, the knife being pushed up into the attic; the urgent symptoms were rapidly relieved, the patient soon recovering. R. Lake.

Harris, H. Elwin (London).—*A Case of Thrombosis of the Lateral Sinus Operation; Recovery.* "Lancet," Oct. 14, 1893.

A MAN, who had occasionally suffered from discharge from his ear, had an exacerbation, with severe earache and rise of temperature (103·6, and next day 105·4), after recovering from pneumonia. The pain continued, the discharge stopped, there was tenderness on pressure just below the mastoid process, and the temperature oscillated widely. On the fifteenth day there was a distinct rigor, and the patient was drowsy, but there was no ophthalmoscopic change. Thrombosis of the sinus was diagnosed, but operation was refused. Later it was permitted. The sinus was exposed by trephining, and thick, purulent, sanguineous fluid was withdrawn by hypodermic syringe. An incision was made and more similar fluid escaped, followed by pure blood. The hæmorrhage was checked by pressure, and the parts were closed. Improvement followed, and the patient gradually recovered without the internal jugular vein having been ligatured. [No statement is made as to the treatment carried out during the very important period preceding the operation.—ED.] Dundas Grant.

Bennett, W. H. (London).—*Thrombosis of Lateral Sinus; Removal of Clot; Immediate and Complete Recovery.* "Lancet," Oct. 21, 1893.

THE patient had otorrhæa after influenza; it ceased in a month, and he had a shivering attack with vomiting. The temperature was continuously high, not oscillating, and there was no cervical swelling nor optic neuritis. The patient was obviously seriously ill, and there was post-mastoid tenderness (best elicited by pressure) one inch behind and about half an inch above the external meatus. Mr. Bennett opened the mastoid, trephined over the sinus which was thrombosed, ligatured the jugular, opened the sinus, turned out the clot, and plugged. There was no extradural abscess. Recovery took place. *Dundas Grant.*

REVIEWS.

Grünwald (München).—*Lehmann's Medicinische Handatlasanten. Band IV. Atlas der Krankheiten der Mundhöhle, des Rachens und der Nase.* ("Atlas of Diseases of the Mouth, the Pharynx, and the Nose.") With 31 chromolithographic plates.

A VERY practical institution are the atlases of Lehmann in small octavo form, containing illustrations of all important branches of medical practice. They are very handy and cheap, so that they may be easily acquired by every practitioner, and consulted by him in doubtful cases. The fourth volume, containing mouth, nose, and naso-pharynx, has been drawn by our talented colleague, Grünwald, who has also added a short but exact and sufficient text. With great ability the author has selected characteristic specimens of every disease. As especially excellent we may mention fig. 27, ulcera syphilitica palati molles; fig. 36, carcinoma of the tonsil; fig. 59, papillomatous degeneration of the posterior ends of the turbinateds. The reproductions of the pictures of anterior rhinoscopy are better and clearer than in any other illustrated work. *Michael.*

Massei.—*Intubation of the Larynx in Children and Adults.* German Edition by Dr. Emanuel Fink (Hamburg), with 24 illustrations in the text. 44 pages. Leipzig und Wien: Deuticke. 1893.

A GOOD translation of this interesting monograph. *Michael.*

Henning, Carl (Leipzig).—*Die Krankheiten der Thymusdrüse* ("Diseases of the Thymus Gland"). *Gerhardt's Handbuch der Kinder Krankheiten.* 44 pages, with 3 illustrations. Tübingen: Laupp.

A REVIEW of the anatomy of the gland is followed by some remarks upon the different opinions as to its physiological significance and pathological anatomy. The most important disease is hypertrophy of the gland, which may fill nearly the whole thoracic cavity, and cause dyspnoea and sudden death. A certain diagnosis cannot be made, because the same signs by palpation and percussion may be produced by other mediastinal tumours. Prognosis is doubtful. Treatment consists of

change of air, diet, and the use of arsenic. The so-called thymic asthma, laryngismus stridulus, is regarded by most authors as neurosis of rachitic origin, without relation to the thymus. In rare cases lipoma, anæmia, hyperæmia, apoplexy, suppuration of the gland, malignant tumours, and tuberculosis are observed.

Michael.

Zarniko (Hamburg).—*Die Krankheiten der Nase, ihrer Nebenhöhlen und des Nasenrachenraums mit besonderer Berücksichtigung der rhinologische Propädeutik für praktische Aerzte und Studierende* ("The Diseases of the Nose, its Accessory Cavities, and the Naso-Pharynx, with special regard to Rhinological Propædeutics, for Practical Physicians and Students"). With 132 illustrations. Berlin: S. Karger. 313 pages.

THE author, who has been for some years assistant to Dr. Hartmann, records in his book the experiences which he has gained in Hartmann's clinic, and these are sometimes modified by his own views; on this basis he has succeeded in creating a very good handbook upon rhinology. The anatomical and physiological chapters are very clear, extensive, and useful, and are rendered more instructive by illustrations from Hartmann's great anatomical collection. The pathology is introduced by Schadowaldt's observation that every palpation of the posterior parts of the nose is felt in the laryngeal region. Occlusion of the nose and its consequences, especially mouth-breathing and its consequences, forms the contents of the next chapter, which is followed by the pathology of speech affected by nasal diseases. For illumination the author prefers reflected light to direct; for anterior rhinoscopy, Kramer's speculum, and for operations a self-retaining speculum of his own invention; for posterior rhinoscopy he applies the palate-hook, if possible. The value of transillumination he does not believe to be very great; palpation as an important method is extensively described; the probe examination is regarded as a method of prime importance; Zwaardemaker's olfactometry is minutely described, the author believing it to be of value. He warns against the application of strong medicaments by the nasal douche; he would have done better to have agreed with most authors in total condemnation of the nasal douche. We agree with the author that special antiseptic fluids should not be applied for nasal operations; it is impossible to obtain complete antisepsis, and the medicaments will only irritate the mucous membranes and destroy the olfactory epithelium. For tamponing the nose gossypium is preferable to iodoform gauze, but the tamponing is not at all harmless, and if possible should be avoided. Cauterization, galvano-cautery, and electrolysis are extensively described, also the methods of vibration.

The second part, upon special pathology, begins with the description of malformations and deviations of the nose, and their operative treatment. The suction of the *alæ nasi* should be treated by Feldbausch's instrument. In cases of synechiæ the author believes that plates of tin or cardboard should not be applied, but he has no better method to propose. The author differentiates between nasal diphtheria and rhinitis fibrinosa. We believe that he is right, because the clinical differences between the two diseases are very great, in spite of the fact

that Loeffler's bacilli are sometimes found in the harmless fibrinous rhinitis.

The next chapters deal with purulent and hypertrophic rhinitis, and the methods of treatment and operation. Ozena is treated of very extensively, and the different theories reviewed, with special regard to Grünwald's view, that in most cases caries is the cause of ozena. For treatment of genuine ozena only Gottstein's tamponade and cleansing by fluids is of therapeutic value; all the other numerous methods will only help if they are combined with thorough cleansing. Then follow chapters upon tuberculosis, lepra, malleus, scleroma, and syphilis. If sequestra are found they must be removed, if they are movable. In uncomplicated cases antisiphilitic treatment by iodide of potassium will cure, without local applications. Of special interest is the clinical description of xanthosis of the nose, of which pathological condition, up to now, we only know the existence of by the anatomical researches of Zuckerkandl. In epistaxis the relations to the general health are reviewed in a capital manner; the neoplasms are illustrated by good microscopical diagrams. Reflex neuroses are reduced to a relatively minor place, contrary to the handbooks of the last few years, which have exaggerated their importance. In the chapter on the diseases of the accessory cavities, the new investigations of Hartmann and Grünwald are extensively described. Adenoid vegetations are dealt with. The last chapter treats of some forms of rarer neoplasms.

The arrangement in paragraphs, and the marginal remarks, facilitate the use of the book for the practitioner. It gives clear information upon all questions, and therefore can be recommended.

Michael.

ASSOCIATION MEETINGS.

PROCEEDINGS OF THE LARYNGOLOGICAL SOCIETY OF LONDON.

Annual General Meeting, January 10th, 1894.

FELIX SEMON, M.D., F.R.C.P., *Vice-President*, in the Chair.

E. CLIFFORD BEALE, M.B., and SCANES SPICER, M.D., *Secretaries*.

Present—Twenty-eight Members and five Visitors.

The minutes of the first Annual General Meeting were read and confirmed.

Dr. E. LAW and Mr. L. A. LAWRENCE were appointed Scrutineers of the ballot for Officers and Council.

The Report of the Council for the past year was then read as follows:—

In presenting their first annual report, the Council have much pleasure in recording the successful launching of the Society in February, 1893, and its steady and increasing prosperity since that time. Starting with forty-five original members, the Society now numbers sixty-eight ordinary members and one honorary member. One member only has been lost

to the Society by the lamented death of Mr. Arthur Hensman. Five ordinary meetings have been held, all of which have been well attended, and many cases and specimens of interest have been exhibited and discussed. The Society's "Proceedings" have been edited by the secretaries, and placed in the hands of members as soon as possible after each meeting. A list of members has also been prepared. It will be noted that the "Proceedings," the Rules of the Society, and the List of Members have been issued of uniform size, in order to fit them for binding together. The examination of the cases exhibited has been greatly aided by the generous gift of twelve electric lamps to the Society by Dr. Felix Semon. In order to facilitate the use of these lamps, it was found necessary to re-wire the large room at 20, Hanover Square, and this work has been satisfactorily carried out, with the sanction and co-operation of the House Committee of the Royal Medical and Chirurgical Society. The Society's library has already been established by the presentation of works on laryngology, and by exchange of special periodicals in return for copies of the "Proceedings." The librarian would, however, be pleased to receive and acknowledge as many original contributions from the members as possible, whether published in pamphlet or book form.

The report was adopted.

The treasurer's annual statement was then presented.

The chairman, in the name of the Council, nominated the following gentlemen, all of whom had rendered distinguished service to the science of Laryngology, for election as honorary members :

Sir GEORGE JOHNSON, F.R.S.
 Dr. WILHELM MEYER, Copenhagen.
 Prof. B. FRAENKEL, Berlin.
 Prof. L. von SCHRÖTTER, Vienna.
 Prof. STOERK, Vienna.
 Dr. J. SOLIS-COHEN, Philadelphia.
 Dr. G. M. LEFFERTS, New York.
 Prof. MASSEI, Naples.
 Dr. E. J. MOURE, Bordeaux.

The scrutineers reported the result of the ballot as follows :

President—FELIX SEMON, M.D.

Vice-Presidents—P. MCBRIDE, M.D. ; W. MCN. WHISTLER, M.D.

Treasurer—H. T. BUTLIN, Esq.

Librarian—F. DE HAVILLAND HALL, M.D.

Secretaries—E. CLIFFORD BEALE, M.B. ; SCANES SPICER, M.D.

Council—E. CRESSWELL BABER, M.B. ; A. BRONNER, M.D. ; DUNDAS GRANT, M.D. ; T. MARK HOVELL, Esq. ; C. J. SYMONDS, Esq.

An Ordinary Meeting of the Society was subsequently held, the President, Dr. FELIX SEMON, being in the chair.

The President briefly returned thanks for his election. The minutes of the previous Ordinary Meeting were read and confirmed.

The following candidates were elected members of the Society :

C. E. HEY, Hornsey.

ST. CLAIR THOMSON, M.D., M.R.C.P. Lond.

The following gentlemen were proposed as candidates for election :—

Dr. J. H. DRYSDALE (Liverpool), by Dr. Kanthack, Mr. Butlin, and Mr. Spencer.

Mr. EDMUND ROUGHTON (London), by Dr. W. Hill, Dr. Scanes Spicer, and Mr. Butlin.

Dr. JAMES CAGNEY (London), by Dr. W. Hill, Dr. Scanes Spicer, and Dr. Hall.

Dr. BRONNER exhibited some *Laryngeal Syringes* which had been so constructed as to admit of their being rendered aseptic by boiling. He also showed some portions of deviated septum removed by means of a cutting trephine, which he had found useful in dealing with such cases.

Mr. CRESSWELL BABER expressed a preference for the saw in these operations in place of the knife or the trephine.

Dr. SCANES SPICER agreed that the saw was preferable for the larger spurs, but would use the cylinder trephine in the cases where the projection extended completely into the inferior meatus.

Mr. W. R. H. STEWART thought the best treatment for any but the very large spurs was to leave them alone.

The PRESIDENT deprecated the too hasty removal of spurs as a cure for neuroses.

Dr. BRONNER would only remove spurs and deviations when they were productive of actual obstruction.

Drs. HILL and CAGNEY exhibited a case of *Rhinitis Atrophica Fœtida with Aphonia*.

A. H., aged twenty-four, a domestic servant, had suffered from dry nose and throat for four and a half years; aphonia three years. One and a half years ago voice returned for a week only when in Guy's Hospital, when the throat was faradized.

In May, 1893, consulted Dr. Cagney at St. Mary's Hospital for "loss of voice." Found to have rhinitis sicca, pharyngitis sicca, and laryngitis; under appropriate *local* treatment these conditions had so far improved that there was now no dryness of the pharynx and larynx, but the aphonia was unrelieved, and recently neuralgia of the left side of the pharynx and head had become developed.

Galvano-cautery to the nose and base of tongue had been tried, also electrolysis to the nasal fossæ. Faradism and galvanism to the larynx had been applied three or four times a week for about two months with no practical benefit. Suggestions were invited as to the best line of treatment.

Dr. DUNDAS GRANT considered the laryngeal condition secondary to the disease of the nose, of which there was evidence in the right middle meatus, and which was probably of the nature of sinus suppuration, as the patient's consciousness of the offensive smell indicated. He believed that irritating material was simply displaced into the larynx by the action

of inspiration, and this had given rise to a sodden condition. The aphonia was a remnant of the laryngitis so caused, and he believed that after successful treatment of the nasal suppuration the laryngeal condition would yield to the judicious use of local applications and electricity.

Dr. BRONNER mentioned that such cases were very common in Bradford. Of about two hundred and fifty cases, at least forty would be cases of dry catarrh, but he had seen many cases where the larynx was alone affected, and which were successfully treated by intra-laryngeal injection.

The PRESIDENT was not convinced of the connection between the nasal and the laryngeal trouble in this case. The aphonia was still complete although the crusts and dryness were no longer visible. Mr. Symonds had restored the voice by faradization, but it had been again lost. He suggested that the case should be shown again at a later stage.

Dr. W. HILL, in reply, agreed with the President's view. He did not think that the laryngeal affection was simply secondary to a suppurating sinus. There appeared to be a general atrophy of the mucous membrane.

Dr. A. A. KANTHACK read the following notes on the *Function and Anatomy of the Epiglottis*, and showed the drawings referred to.

The exact function of the epiglottis was not even yet fully understood. It was a respiratory organ as much as a phonatory one, but in man was more or less abortive. With the base of the tongue it also belonged to the complex protective mechanism of the glottis during deglutition. This had been denied by Prof. Anderson Stuart, but his method in demonstrating that the epiglottis comes forward and does not fold down was faulty. Mr. Anderson and the speaker had shown that if animals such as Stuart used be allowed to swallow in the natural position, with flexed and not over-extended neck, the epiglottis acts as a laryngeal lid. Allusion was made to the work of Moritz Schmidt and others.

In adult guinea-pigs, rabbits, cats, dogs, goats, oxen, horses, and pigs an intra-nasal epiglottis could always be demonstrated by means of frozen vertical sections. These were illustrated by an extensive set of drawings. Mention was made of the exhaustive work of Howse and Gegenbauer, and also that of Bowles and others.

According to Bowles the epiglottis of sucking-pigs was small and intra-oral, and at a later age became intra-nasal, *i.e.*, ascended behind the velum. The same change occurred in kittens and puppies. In foetal kittens the epiglottis was as often intra-nasal as intra-oral. With age, therefore, changes in position of the epiglottis took place which required fuller investigation. In cats, rabbits, and guinea-pigs the velum palati extended vertically down to the base of the tongue in front of the epiglottis, so that in these animals swallowing under natural conditions could only take place with an epiglottis folded over the larynx.

In rats the epiglottis was found either in the oral or naso-pharyngeal cavity, in mice as a rule in the former; but the parts in smaller animals were so delicate that they were easily deranged.

In man and anthropoid apes the epiglottis was rudimentary, and did not show the intra-nasal arrangement. Gegenbauer had shown, however, that developmentally it was not connected with the mouth. In some monkeys the velum descended in front of the epiglottis, but in most the relations resembled those of man, and the epiglottis did not reach the velum. The human epiglottis was at times greatly enlarged, so as to be plainly visible on opening the mouth, and to hide the posterior wall of the pharynx from view. Dr. Kanthack asked whether in such cases the velum and uvula descended in front or behind the elongated epiglottis.

Dr. SCANES SPICER thought that the epiglottis, as seen clinically, was always posterior to the soft palate and uvula. The discharge from the uvula certainly dripped on the oral side of the epiglottis.

The PRESIDENT asked Dr. Kanthack to follow out this question of the epiglottic function. To what extent was the epiglottis concerned in phonation? It had been shown that *timbre* depended on the position of the epiglottis. In the production of open tones the epiglottis was said to be always more upright.

Dr. PERCY KIDD mentioned the case of an aphonic boy, in whom any attempt at phonation resulted in the pulling down of the epiglottis to a nearly horizontal position.

Dr. KANTHACK called attention, in reply, to the extreme difficulty attending all experiments as to function.

Dr. PERCY KIDD showed a case of *Recurrent Papilloma of Larynx* twice operated on by thyrotomy.

Charles W., aged nine, was admitted into the Brompton Hospital on September 7th, 1893, on account of loss of voice and slight inspiratory stridor. His voice had been lost since April, 1893. Laryngoscopic examination showed the presence of growths on the anterior portions of both vocal cords, especially the right.

On September 19th Mr. Godlee performed thyrotomy, and removed the growths with a sharp spoon. Nitrate of silver was applied to the base of the growths. Rapid healing ensued.

A fortnight later, October 3rd, a flattish outgrowth was detected on the laryngeal aspect of the right half of the epiglottis, and the corresponding vocal cord at its anterior third presented a pale, œdematous, fusiform enlargement. The patient then went to his home.

On November 21st he was readmitted, as the growth had recurred in the old site and was larger than ever.

On November 27th Mr. Godlee again performed thyrotomy, and cleared out all the growths with a sharp knife. A great part of the left vocal cord had to be removed with the growth. Rapid healing again took place, but on December 17th, less than three weeks after the operation, another recurrence took place. Both cords were then red, thick, and irregular, but moved fairly well. A large growth was attached to the right cord at its anterior half, and the corresponding part of the left cord was somewhat swollen. The outgrowth on the right side of the epiglottis remained unchanged.

Microscopically the growth was a papilloma.

Mr. BUTLIN recalled two cases in which he had performed thyrotomy on the same day. In one the operation was simple and successful, with good recovery of voice. In the other case the growth was diffuse and difficult to distinguish from healthy tissue; it was removed by scraping, but recurred again and again, and the patient was now wearing a tracheotomy tube.

Dr. DUNDAS GRANT referred (1) to the reported spontaneous disappearance of papillomata which sometimes occurred after tracheotomy; (2) to the reported curative action of arsenic given internally; (3) to the frequent coincidence of post-nasal adenoids; (4) to the value of applications of strong solutions of perchloride of iron. In the case reported he would attack the growth by means of his safety endo-laryngeal forceps under anæsthesia, and at the same time administer arsenic.

Dr. SCANES SPICER thought that the growth might be removed endo-laryngeally, and recommended the use of chloroform supplemented by frequent mopping with cocainized mops to produce complete anæsthesia and paralyze secretion.

The PRESIDENT mentioned a case in which no less than seventeen thyrotomies had been performed on the same patient, the result after each being simply recurrence of the growth. He agreed that Dr. Kidd's case might be treated endo-laryngeally with Dr. Dundas Grant's forceps. As a general rule he would prefer to leave such growths alone in young children, unless they were causing dyspnœa. Although brilliant results might occasionally occur, recurrence generally took place and perpetual operations had to be performed. Even where there was dyspnœa it was sometimes better to perform tracheotomy and wait until the child grew older before removing the growth.

Dr. PERCY KIDD exhibited a specimen of *Angioma of the Larynx*.

Microscopical section of a portion of the tumour showing the characters of an angioma.

The patient, a Russian woman aged thirty, came to the out-patient department of the London Hospital in March, 1893, complaining of hoarseness and a sore feeling in the throat which had existed for a period of twelve months.

Laryngoscopic examination revealed the presence of a rounded tumour the size of a pea springing from the left vocal cord, about the junction of the anterior and middle thirds. The growth presented a pinkish-grey colour, and was attached by a broad flat pedicle which permitted a considerable degree of movement. After cocainization of the larynx the tumour was removed in two pieces with Mackenzie's cutting forceps. No bleeding of any note resulted.

Three days later the left vocal cord presented a reddish irregular appearance, but no trace of the growth remained. The patient ceased attending after this, and had not been seen again.

Mr. L. A. LAWRENCE showed a patient with *Enlargement of Posterior Faucial Pillars*.

F. P., a man-servant aged thirty, had suffered with his throat as

long as he could remember. A diagnosis of enlarged tonsils had been made when he was eight years old.

The present trouble dated more especially from Christmas, 1884, as the result of a bad cold caught by exposure in a severe snowstorm. The tonsils were large. Posterior faucial folds very large, smooth, red, and hard to the touch, and extending some considerable way down the back wall of the pharynx. Uvula also swollen. Vocal cords normal. The turbinate bones were slightly enlarged, but the nostrils not blocked. Patient could blow out a candle through either nostril. The pharynx was greatly narrowed laterally by the projection of the large posterior pillars.

In October last these conditions had been rather more aggravated than they were at present, and the voice was then nasal in tone. He had been using a paint of chloride of zinc, 30 gr. ad ʒj, till November 17th, since which time it had been increased by ten grains.

What further treatment was advisable in such a case?

Mr. W. G. SPENCER thought it would be possible to divide the thickened faucial pillars with the cutting cautery and shell out the tonsil.

Dr. SCANES SPICER exhibited a pathological specimen of *Laryngeal Papillomata*.

A. L., aged eight, a school girl, lost her voice about January, 1887, during an attack of measles, and had not recovered it up to the period of coming under treatment in October, 1887.

On laryngoscopic examination the whole length of the right vocal cord on its upper surface and inner margin was covered with sessile warty growths.

She was given chloroform, placed in a sitting position in a nurse's lap in a chair, the tongue held out by an assistant on the right, the head steadied and kept square by an assistant behind. Anaesthesia was completed by spraying the throat with a ten per cent. solution of cocaine. The growth was then removed piecemeal at two sittings by means of the laryngoscope and Mackenzie's lateral cutting forceps. Much mopping was required on account of exudation of secretions and bleeding.

Her restoration to health of voice and larynx was perfect. At the end of 1893 she presented herself for examination. There had been no trouble since, and on examination, six years after the operations, she had a perfectly normal larynx and voice.

This patient had a papilloma on her lip as well, and nasal obstruction from post-nasal adenoid hyperplasia, which were treated at same time.

The points of interest in the case appear to be the early age of the patient, the methods which it was found necessary to adopt in order to see and remove the growth, and its successful removal without tracheotomy.

Mr. CRESSWELL BABER remarked upon the difficulty attending operations under chloroform alone in such young children. The plan of combining it with the local use of cocaine was a decided improvement.

Mr. KANTHACK observed that in experiments upon animals it was always found that an exceptional amount of chloroform was required to paralyze the act of deglutition.

The PRESIDENT referred to the increased flow of saliva induced by chloroform, and agreed that the laryngeal reflex was the last to disappear under anæsthetics.

Dr. SPICER thought that chloroform alone was not sufficient to paralyze the pharynx. He used the cocaine mops persistently till all secretion had ceased.

Dr. SCANES SPICER exhibited a pathological specimen of *Papilloma of Uvula*.

The patient, A. H., aged fifteen, a servant, came complaining of tickling in the throat, which led to irritating cough and "spasm" of the throat. These symptoms had been noticed three months.

On examination a papillomatous pedunculated mass the size of a pea was seen to be attached to a somewhat elongated uvula.

It was considered that the symptoms would be relieved by shortening the uvula about the attachment of the growth, which proved to be the case.

Dr. Spicer had never before seen a papillomatous growth of this size attached to the uvula or in the pharynx, and he believed that such cases were uncommon.

Mr. W. R. H. STEWART exhibited a specimen of *Carcinoma of the Œsophagus*.

L. G., aged twenty-nine, a cook, an anæmic and somewhat emaciated woman, attended at the London Throat Hospital at the end of May, 1893. She stated that up to the preceding February, when she caught cold, she was well. She then had a sore throat, with dryness and difficulty of swallowing, taking fluids better than solids. After two or three weeks she went to Hastings for a fortnight, where she seemed to be quite well. On returning to London, however, the symptoms all returned with greater intensity. She began to lose flesh, and the food occasionally regurgitated through the nose. There was no history of syphilis or injury to the throat of any description. The father and one brother died of phthisis. The voice was hoarse. There was tenderness over the right side of the larynx, and she expectorated a white frothy fluid.

Laryngoscopic examination showed some irregular swellings situated about half an inch above the arytenoids and more to the right of the middle line, and from one point pus was oozing; through this a fine probe could be passed into the œsophagus, some roughness being felt as it went through. Larynx normal. Patient gradually got weaker, the difficulty in swallowing, tenderness and pain in the right side of the neck increased, and there was a good deal of swelling in this region. Gastrostomy appeared to be imminent, and the patient was therefore transferred to the Great Northern Central Hospital. There on July 21st, the swelling in the neck having increased, Mr. Stewart dissected down to it, and found a mass of tough, thickened tissue, which proved to be the thickened wall of the œsophagus. This was removed, and a large drainage tube inserted; but the patient gradually got worse, and as it was found impossible to feed her either through a catheter or by the tube in the

wound, gastrostomy was performed by Mr. Macready, and a good meal was given through the tube during the operation; she seemed greatly relieved, but gradually sank, and died two days after.

Post-mortem.—The upper portion of the œsophagus for about four inches was found to be affected, and the microscope proved the growth to be carcinoma.

There were several points of interest in this case. First, with regard to the unusually early age—twenty-nine. The disease was thought to be very rare before thirty-five years, and although it occurred earlier in women than men, forty-five to fifty-five was the usual time. Again, it was an instance of the reputed disposition of children of tuberculous parents to develop cancer of the œsophagus. There was no traceable exciting cause, and the disease did not spread from an adjacent organ. Death took place very rapidly, within five months of the patient feeling any symptom, and the upper portion of the tube was affected; but it was probable that the disease had no special preference for any part. Does ulceration occur at an earlier stage when the upper part of the œsophagus is first affected?

Mr. W. R. H. STEWART showed a case of *Suppuration in the Ethmoidal Cells*. (This case was reported in the *Lancet*, April 29th, 1893.)

M. W., a married woman, was sent to him at the Great Northern Hospital by his colleague, Mr. Morton, with the following history:—Scarlet fever twenty years previously. During convalescence a large abscess formed in the corner of the right eye, and she was slightly deaf. The abscess burst and both ears discharged. She had no further trouble in the eye for ten years, but suffered occasionally from severe headaches. When out one day she suddenly felt a most violent pain which lasted for a week, during which time she could not sleep or lie down, and was at times unconscious. She consulted an oculist, who told her she had a tumour at the back of her eye. He incised a hard lump in the corner, and a lot of discharge came away. Eighteen months afterwards the eye was again very painful, and once more opened without relief. The pain in the head was very severe, and the swelling was incised a third time. Since then, nine years ago, the pain in the head has been almost unbearable, from time to time lasting from a few hours to two or three days. The swelling in the forehead and temple was always much inflamed whilst the pain lasted. Five years ago, after using a very hot lotion, large quantities of discharge came down into the throat, and have continued ever since. During the past few months the substance in the corner of the eye had become larger, the eye itself was more prominent, the attacks of pain more frequent, and affected the teeth so much at times that she could not bite. The parts seemed numb when not painful. When seen, now three years ago, the eye was pushed outwards and downwards, and there was a round swelling in the interior and superior corner of the orbit; the canaliculi had been slit up, and there was some discharge oozing from them. Rhinoscopy showed a large, hard, and tense swelling occupying the place of the right middle turbinate. Naso-

pharynx free. Under an anæsthetic he punctured the turbinate swelling with a trocar, and then on inserting his little finger into the nostril the tumour crackled up before it, and he was enabled to pass his finger on into the orbit. He therefore made a free incision into the internal and superior corner of the orbit, found a large quantity of dead bone and the orbit full of stringy pus, which was pushing out the eyeball; the pus had also hollowed out a cavity in the direction of the frontal sinus, into which he could insert the tip of his little finger. The dead bone was removed, and the pus and *débris* well washed out with a warm boric acid lotion; a large drainage-tube was then inserted through the nostril and brought out through the wound. The patient did remarkably well, and now, three years after the operation, the nose remained free. There was, however, some slight hyperæsthesia round the orbit, and some bone had recently come away. The late Sir W. Bowman saw the case with Mr. Morton before she came to him, and pronounced it one of suppuration in the post-ethmoidal cells.

Mr. SYMONDS showed a case of *Recent Syphilitic Stenosis of Larynx*.

The patient was a man aged forty-five. There was a general diffused thickening of the mucous membrane, with much narrowing of the glottis and impeded respiration. The affection had existed for one year, and though so recent had not yielded to a vigorous course of remedies. A prophylactic tracheotomy was recommended.

Mr. SYMONDS showed, for the second time, a case of *Swelling of Ventricular Band and Arytenoid Cartilage of Uncertain Nature*.

The patient, a man aged seventy-five, was first exhibited in May, 1893. At that time he had a swelling of the left band and arytenoid, with fixation of the cord. The symptoms arose suddenly while eating, and at first it was thought that the part had been wounded by a bone. There was no history to support this view. He had, when shown in May, a painful short cough with much dysphagia. At the present time, after an interval of eight months, there was still swelling on the left side, with fixation of the cord. It appeared hard and had lost its glazed appearance. There was a depression in the centre that looked like a superficial ulceration. The arytenoid was not so swollen as before. The cough and the pain disappeared, and he could swallow easily. In May the diagnosis lay between a growth and some form of perichondritis. At the present time the diagnosis was still open. The appearances did not closely resemble any known growth. Iodide of potassium had been tried. There was no external change in the larynx. The case would come before the Society again.

The PRESIDENT thought that the diagnosis must still remain uncertain, but he inclined to his former view that it was originally a perichondritis. He expressed thanks to Mr. Symonds for the further exhibition of the case, and suggested that all such doubtful cases might with advantage be shown again and again to the Society, in order that their progress might be watched and studied.

Dr. WATSON WILLIAMS brought forward a case of *Epithelioma of the Soft Palate and Fauces*.

F. F., aged sixty-five, was admitted to the Royal Bristol Infirmary in August, 1893, with a large epitheliomatous growth occupying the soft palate, well displayed in the coloured drawing exhibited. It probably commenced in the soft palate on the right side eleven months before admission, when the patient first began to notice pain and difficulty in swallowing.

The case had previously been diagnosed and treated for syphilis, but there was no history of syphilis, nor any family history of malignant disease.

The main portion of the growth showed light pink, granular, but deep ulceration, covered with greyish muco-pus and disintegrated tissue which gave a characteristic fœtor to the breath. The surface of the ulcerated portion was fissured, nodular, and of a cauliflower aspect, while the margin was seen to be elevated, distinct, and hard. There was no glandular enlargement or infiltration in the neck at first, nor was the pain intense. It had been relieved by iodide of potassium for a time, and when it became more severe by ten-grain doses of analgen. The growth gradually spread and disintegrated. The gland of neck became rapidly involved, and the patient sank and died two months later. An attempt was made to arrest the growth by inoculations with pure cultures of the streptococcus erysipelatosus, but without success.

PROCEEDINGS OF THE LARYNGOLOGICAL SOCIETY OF LONDON.

Ordinary Meeting, February 14th, 1894.

FELIX SEMON, M.D., F.R.C.P., *President*, in the Chair.

E. CLIFFORD BEALE, M.B.,
SCANES SPICER, M.D., } *Secretaries.*

Present—Twenty-two Members and two Visitors.

The following gentlemen, nominated by the Council at the previous meeting, were elected *Honorary Members of the Society*:—

Sir GEORGE JOHNSON, M.D., F.R.S.
Prof. B. FRAENKEL, Berlin.
Prof. VON SCHROETTER, Vienna.
Prof. STOERK, Vienna.
Dr. WILHELM MEYER, Copenhagen.
Dr. J. SOLIS-COHEN, Philadelphia.
Dr. G. M. LEFFERTS, New York.
Prof. MASSEI, Naples.
Dr. E. J. MOURE, Bordeaux.

The following gentlemen were elected *Ordinary Members of the Society*:—

Dr. J. H. DRYSDALE, Liverpool.
Dr. JAMES CAGNEY, London.
Mr. EDMUND ROUGHTON, London.

The minutes of the previous meeting were read and confirmed.

Dr. CLIFFORD BEALE showed a case of *Tubercular Tumour of Larynx*.

The patient, aged twenty-two, had been under observation for the last four years, suffering on and off from tubercular disease of both apices. The active pulmonary disease had always subsided whilst the patient remained in hospital. The throat had at first been affected with occasional attacks of simple laryngitis. During the last year a nodular swelling had formed at the posterior part of the right arytenoid cartilage, projecting into the larynx and covering the right processus vocalis. It was smooth, rounded, and not ulcerated, and only gave rise to occasional hoarseness. The firm character of the swelling, its position, its relation to the inactive disease in the lung, and the fact that it showed no tendency to disintegration placed it in the class of conglomerate tubercular tumours of the larynx, described by Stoerk and others.

Dr. TILLEY thought that the tumour must be classed as tubercular, and mentioned an exactly similar case. The position of the swelling was, he thought, sufficient in itself to warrant the diagnosis of tubercle.

Dr. DE HAVILLAND HALL, agreeing as to the tubercular nature of the tumour, would deprecate any interference with it so long as it gave rise to so little trouble.

The PRESIDENT described the case of a man aged fifty in whom no tubercular disease of the lung was manifest, but who had a slowly growing tumour in the anterior commissure of the cords. This was proved to be tubercular by examination of a portion of it, and was checked by applications of lactic acid. Possibly some tubercular lesion of the lung was present, but no physical signs of it could ever be discovered.

Mr. BUTLIN showed a patient with *Complete Paralysis of the Right Vocal Cord*.

The cord stood almost in the middle line, and its free border was incurved. The other vocal cord moved well, and came in contact with the paralyzed cord, but the voice was gruff and unsteady. There were no signs of disease in the interior of the larynx, and the two cords were quite white and clean.

The patient said he had become gradually hoarse in the course of June, 1893, and was not conscious at that time of having suffered from a cold.

He had been an inmate of St. Bartholomew's Hospital for some days, during which a careful examination had been made, in order to discover a cause for the paralysis, but without success. There were no evident signs of central or peripheral nerve lesion; no signs of aneurism or tumour in the neck and chest; no signs of malignant disease of the larynx or œsophagus.

There was a history of venereal disease many years (thirty) previously, but no clear history of syphilis. The man stated that he had lately lost a stone in weight, but that was apparently only due to a sharp attack of influenza.

No physical signs of affections of the apices of the lungs were discovered.

The patient was a miller fifty-two years old.

The PRESIDENT thought it possible that the paralysis might be the forerunner of tabes. He had been struck with the frequency of early abductor paralysis in cases of commencing tabes, but agreed that in the present case no symptoms were as yet evident which could justify such a diagnosis.

Mr. BUTLIN also showed for Mr. Bowlby a case of *Carcinoma of Right Side of Larynx*.

A man, between forty and fifty years of age, had considerable swelling and ulceration of the right ary-epiglottic fold and right half of the larynx, which was immovable. There were enlarged, hard, fixed glands on the right side of the neck, particularly below the angle of the jaw. The larynx was broader than natural.

The patient suffered much from pain, dysphagia, and occasional sharp attacks of dyspnoea. His symptoms dated from September, 1893, when he first began to experience pricking sensations about the right side of the larynx.

Dr. WILLIAM HILL exhibited a clinical case of *Rhinitis Fœtida, with Antral Disease and Hypertrophy of Uncinate Process and Mucous Membrane covering it, simulating so-called "Cleavage."*

Miss G., aged forty-five.

History : The foetid rhinitis was of five or more years' duration, and had been treated by removal of crusts, antiseptic sprays and douches, galvano-cautery, trichloroacetic acid, iodol ointment, etc.

In January this year an attempt was made to drain the antrum through a tooth socket. A considerable quantity of pus escaped through this opening. The antrum had been syringed until within the last week, when the operation became too painful.

Rhinoscopic appearance : In the right nostril could be seen the condition corresponding to the descriptions of "cleavage" of the middle turbinated body (Woakes). The body on the outer side of the cleft *in this case* was clearly a pathological enlargement of the *uncinate process* of the ethmoid, together with the mucous membrane covering it ; this process normally bounds the hiatus semilunaris in front and below. The hypertrophy of the uncinatè process and its mucous covering might be conveniently described as the "*uncinate body*." The body on the inner (septal) side of the cleft was the middle turbinated itself. The cleft was choked with granulations, and it was inferred that the antrum contained granulations or polypi, or some other diseased condition of the mucous membrane.

Proposed further treatment :

1. Removal of the hypertrophied area ("*uncinate body*").
2. Opening of the *maxillary antrum* through the *canine fossa*.
3. Establishing an accessory opening between nose and antrum, either in middle or inferior meatus.

Note: Although the "*uncinate body*" is usually composed of overgrowth of bone *and* mucous membrane, the bone occasionally is of normal size, but covered by such an overgrowth of the muco-periosteum as to appear as a fibrous or mucous *tumour* which can readily be severed.

Dr. FELIX SEMON showed a case of *Obscure Pharyngeal Ulceration in Arrested Laryngeal and Pulmonary Tuberculosis*.

N. W., aged thirty-six, a gentleman coming of a healthy family, began to suffer with severe sore throat in August, 1892. Had never had syphilis. Nevertheless, in November, 1892, a London laryngologist considered the affection to be specific, having found considerable ulceration of the epiglottis. In December, 1892, Dr. Davison of Bournemouth pronounced distinct disease of right apex. He treated the larynx with lactic acid, and ordered constitutional measures. The throat got gradually better, and in April, 1893, Dr. Davison stated that the laryngeal ulceration had been definitely arrested. In June, 1893, the soreness started again, and the patient consulted the reporter, who found consolidation of the right apex and tubercular tumefaction and ulceration of the epiglottis, a diagnosis which was subsequently corroborated by Sir William Broadbent. The epiglottis was treated by energetic curetting followed by applications of lactic acid (thirty to fifty per cent.), and the ulceration again healed, leaving a large loss of substance about the middle of the part, covered by a peculiarly white scar. The right half of the epiglottis has ever since remained tumefied. Internally the patient was given, and had ever since taken, large doses of creasote. The condition of the right lung had remained perfectly stationary, and the general health very good. On the epiglottis once more, at the beginning of November, slight ulceration took place in the scar tissue, which was again promptly stopped by lactic acid.

At the commencement of this year Dr. Davison observed on the posterior wall of the pharynx some small, well-defined, clean, steep ulcers which he at first was inclined to look upon as tubercular, but which did not yield to lactic acid. The patient states that he has once before had a similar ulceration, which gradually disappeared. The theory of syphilis once more being revived, the patient took for a fortnight iodide of potassium. This only resulted in the production of considerable œdema of the left arytenoid cartilage, with transitory immobility of the left vocal cord. The pharyngeal ulcers were now again spontaneously subsiding, and suggestions were invited as to their probable nature.

Mr. SYMONDS suggested that the pharyngeal ulceration should be curetted and treated with lactic acid.

The PRESIDENT had used lactic acid without any result, but not after curetting. The fact that the larynx had healed under lactic acid made it appear that the pharyngeal condition must be due to some other cause besides tubercle.

Dr. SCANES SPICER exhibited a clinical case of *œdema and Infiltration of Arytenoid Mucous Membrane of Uncertain Origin*.

J. F., aged fifty-one, labourer, was sent to the throat department at St. Mary's Hospital by Dr. Maguire, on January 23rd, 1894.

Symptoms : Shortness of breath : feeling of choking and suffocation ; paroxysmal cough ; excessive secretion of frothy mucus ; constant discomfort in throat day and night : voice weak, but not otherwise affected ; difficulty of swallowing extreme : had lasted two years.

Laryngoscopic examination : Pale, glistening, semi-transparent, bladder-like swelling seen filling upper orifice of larynx, and obscuring glottis completely. After cocainization this swelling somewhat subsided, and the left pyramid was seen to be œdematous and lobulated in the situation of cartilages of Santorini and Wisberg. The left ventricular band was considerably infiltrated and red, but no ulceration could be made out, and it overlapped the left vocal cord. Both vocal cords moved normally on phonation, and glottis widened at inspiration.

The diagnosis appeared to lie between—

1. Perichondritis with secondary thickening and œdema.
2. Malignant disease with secondary œdema.
3. Tertiary syphilis with secondary œdema.
4. Tubercular disease with secondary œdema.

(1) Appeared to be excluded by free mobility of cords, and by long duration of case without much alteration in symptoms.

(2) By the same signs, by absence of ulceration or by glandular enlargement, and by absence of sufficiently marked cachexia.

(3) There was a history of syphilis, but had this laryngeal affection been gummatous it must have led to ulceration and destruction of soft parts at all events, especially as there had been no antiseptic treatment.

(4) The case was probably of tubercular origin, on which had supervened an unusual amount of œdema. It is the observer's experience that such marked laryngeal disease in tuberculosis is seldom confined so entirely to one side. The emaciation, history of repeated attacks of bronchitis, slight hæmoptysis, together with depression about clavicular fossæ and upper intercostal spaces (in the absence of any marked pulmonary lesions), taken all together, confirm the tubercular view. Examination of sputa for tubercle bacilli had given negative result.

Dr. DE HAVILLAND HALL thought that the condition was one of perichondritis, and not of tubercle.

The PRESIDENT, Mr. BUTLIN, and Dr. TILLEY supported Dr. Spicer's view that the disease was tubercular.

Mr. W. R. H. STEWART mentioned a case of *Multiple Sarcoma*.

F. P., a fireman, had been exhibited by him at the first Clinical Meeting of the Society in April, 1893. A full account of the case appeared in the first number of the "Proceedings." At the suggestion of two or three members Mr. Stewart had pushed the arsenic treatment, and within a month the patient was taking liq. arsenicalis ℞v., t. d. s., and sometimes even larger doses. The result as far as the tumours were concerned was marvellous. The glands in the neck gradually got softer and disappeared ; the edges of the ulcers, to use Dr. Freeborn's description, who kindly looked after the case at Oxford, seemed to melt away, and the naso-pharynx became fairly free. The swelling in the tongue, however, did not get less, but it ulcerated, and a lump came away from

it, which under the microscope proved to be simply a blood-clot. About six weeks after commencing the arsenic his fingers and toes began to feel numb, the feet swelled, his knees began to give way, and he fell on them occasionally when walking. The arsenic was then left off until July 4th, when it was recommenced, but it could not be continued in such full doses again. The trouble in the throat had gradually become worse, until it had reached its present condition, viz., much the same as it had appeared last April.

Mr. W. R. H. STEWART showed a case of *Retraction of Alæ Nasi—Ozena*.

M. H. for the last eight years had noticed a bad smell from the nose, gradually getting worse. The nose became blocked and very sore. As the soreness passed away the sides of the nose fell in. On examination there was a contraction on both sides about half an inch from the opening. The patient had been under treatment for ozena for about a fortnight with applications of lactic acid, eighty per cent. solution, and the passage of nasal bougies. Mr. Stewart had not much hope of greatly benefiting the contracted condition of the openings.

Dr. TILLEY suggested that the patient should wear the small celluloid alæ nasi dilators introduced by Dr. Spicer, which, by a little trimming down to suit the case, would be found to give the patient relief from the obstruction to breathing.

Dr. J. B. BALL did not think that any special treatment was called for, as the patient seemed to have room for respiration.

Dr. HALE WHITE showed a case of *Absorbed Gumma over Right Arytenoid Cartilage—Impaired Movement of Vocal Cord*.

Ed. S., aged thirty-three, admitted December 19th, 1893. In Guy's Hospital three years ago for rupia, and nine months ago for sloughing gummatous testicle. Six weeks before admission he lost his voice, and this had not returned. Difficulty of breathing had slowly come on, and any slight excitement brought on choking attacks.

On admission cyanosis, enlarged glands in neck, specific scars on legs, perforated nasal septum, voice very husky, cough difficult. Inspiratory stridor so bad that tracheotomy appeared imminent. Larynx did not move much. Some sucking in over lower part of chest. Any excitement increased the dyspnoea. Over the right arytenoid was a rounded, greyish, œdematous-looking swelling as large as a Barcelona nut. The right arytenoid could be seen, but the posterior part of the laryngeal aperture was blocked by the swelling; the right cord moved, but not the left. Under treatment with gr. x of pot. iod., gradually increased to gr. xxx ter die, and one-eighth grain of perchloride of mercury injected into the gluteal muscles, the swelling slowly subsided, and now there was scarcely any swelling, but the left cord moved but little.

Dr. DE HAVILLAND HALL mentioned a similar case where tracheotomy was often threatened, but where the use of iodide again and again averted its necessity. Tracheotomy was finally unavoidable, and subsequently thyrotomy had to be performed. The patient died of pneumonia some-

what later, and the laryngeal disease was found to be malignant, although it had apparently healed on several occasions.

The PRESIDENT thought that while it was not well to wait too long for tracheotomy, it was always advisable to use iodide and mercury in the first instance if possible. Cases had occurred of rapid improvement by such means. In some cases the disease had been seated in the trachea, and a too hasty tracheotomy would only have complicated matters without giving relief. Replying to Dr. Hale White, he had found that the movement of the affected cord in a case similar to the one exhibited had been completely restored in course of time.

Dr. WILLCOCKS showed a case of *Gummata of Epiglottis* (?).

The patient, R. C., aged twenty-seven, a Covent Garden porter, had contracted a primary sore three years ago, followed by slight sore throat and erosions on edges of tongue. Rash on skin. Voice husky for last two and three-quarter years; affected shortly after primary sore.

Present condition: Epiglottis much thickened and irregularly nodulated; somewhat fixed; no visible ulceration; feels hard; view of interior of larynx imperfect; no enlarged glands to be felt under jaw.

Mr. STEWART referred to a similar case which cleared up under the use of iodide, but with occasional severe laryngeal spasm, necessitating the use of an anæsthetic. In another case the disease simply went from bad to worse, the iodide showing no result.

Dr. BRONNER advised the use of mercurial inunction.

Dr. WILLCOCKS proposed to treat the case with iodide and mercury.

Obituary.

THEODOR BILLROTH.

THE greatest representative of German surgery has passed away. Theodor Billroth died on the 5th February, at Abbazia. Not only as physicians must we share the universal grief, but laryngology has to deplore the loss of a great surgeon, the originator of the greatest, most important, and most audacious operation in laryngology, viz., extirpation of the larynx. It is not necessary here to review the biography of the departed surgeon, which has been related in all the medical and political newspapers of the last few weeks, as well as his great influence on the development of surgery. We may restrict ourselves to the mention of his first operation of total extirpation of the larynx. In 1873, three years after the instructive experiments made on dogs by Czerny, Billroth tried without success the removal of a malignant neoplasm by thyrotomy, and then decided to remove the whole larynx. The patient was cured, and could speak with a loud voice by the aid of an artificial larynx. It was the first case of the great number of partial and total extirpations since performed by numerous surgeons. He thus created a

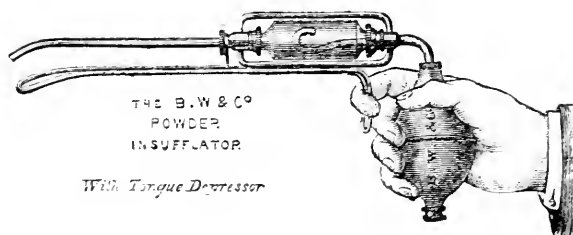
new era in the treatment of malignant laryngeal disease, and his name will be for ever connected with the history of our specialty. *Michael.*

[Though Billroth was the first to perform total extirpation for laryngeal cancer in 1873. Patrick Heron Watson, of Edinburgh, had already demonstrated the practicability of the operation, by performing it upon a patient in 1866, suffering from tertiary syphilis of the larynx, and it was not until seven years after this date that Billroth performed the operation for cancer. It is, therefore, to Watson, and not to Billroth, that the credit of bringing the operation within the domain of practical surgery must be accorded.—ED. JOURN. OF LARYN.]

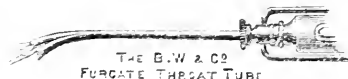
NEW INSTRUMENT.

Powder Insufflator. Burroughs, Wellcome & Co.

THIS is a very perfect little instrument, which we have found to be most useful in practice. To those who make much use of insufflations it would seem to be indispensable. It is handy and neat, and a vast improvement



upon all other forms of insufflator. The advantage of interchangeable cylinders, ready charged with the different powders commonly used, is obvious. The instrument is illustrated above, and we cannot too highly praise it. We do not, however, see much advantage in the "furcate tube"; but the tongue depressor is at once a useful and necessary part of the



instrument. Like many of the smaller appliances introduced by this eminent and enterprising firm, this insufflator is a wonderful improvement upon anything of the kind we have ever met with.

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**RESULTS OF THE SURGICAL TREATMENT OF
LARYNGEAL PHTHISIS, based on 252 Cases.**

By Dr. THEODOR HERYNG, Warsaw.

(Continued from p. 135.)

IF we now make a closer survey of the cases of laryngeal phthisis which I have just described, and in which a cure has been established for a considerable period, we obtain a confirmation of the thesis which I have repeatedly advanced, viz., that tubercular ulcers and tubercular infiltrations and their products in any position at the upper part of the larynx, as well as on the vocal cords, can be healed in a comparatively short time under suitable circumstances with the aid of the surgical treatment. Tubercular affections of the epiglottis, and even the hard infiltrations, which may persist for long without breaking down to form ulcers, have also been cured by surgical treatment. I have already furnished elsewhere the anatomical proofs of this process. When the disease is confined to one side of the epiglottis the prognosis is more favourable than when the whole epiglottis is affected. It is usual also to be able to bring about a cure when one-half of the larynx is affected, even although the epiglottis, ary-epiglottic fold, ventricular band and vocal cord be involved. I would refer the reader to the cases of Frau Goldschall, Dr. Szczasny and Herr Skib in support of this statement.

As yet the bulk of the profession is unconscious of the above fact, which has been frequently confirmed. Laryngeal phthisis is still regarded by many practitioners as an absolutely incurable disease. The reform that has been accomplished during the past six years has received

consideration only in a few of the newer handbooks on special pathology and therapeutics.

For the very purpose of convincing the general practitioner of the successful results obtained by the energetic treatment of the larynx I consider it necessary to describe this subject in medical papers, not only in those specially devoted to laryngology, but in the journals published for the profession generally. Reports of cases must be adduced as confirmatory evidence so long as marked differences of opinion exist regarding the value of this procedure. I also deem it essential to show in medical societies and at congresses cases in which severe laryngeal phthisis has been cured for a considerable time. It is only in this way that we can make progress against the erroneous doctrine of non-intervention in laryngeal phthisis. I need hardly add that, besides the local treatment, I regard it of the greatest importance to pay due attention to the hygienic and dietetic conditions, without which no cure can be obtained. It is quite evident that increase in strength and nutrition are only possible when the patient can eat and drink without difficulty. The first and chief duty of the surgeon is to overcome the dysphagia in laryngeal phthisis.

I must protest against the view that a change of climate can be substituted for the local treatment in a case in which the disease is advancing, and is accompanied by dysphagia. Such an opinion is correct only in so far as it is warranted by the publication of spontaneous cures of milder cases of laryngeal phthisis. They are, however, always exceptional, and in severe advancing phthisis with dysphagia exceedingly rare.

It is very difficult to explain why the treatment in certain cases is followed by improvement or cure, while in others it only yields negative results. The question most probably hinges on the constitution of the patient and the character of the infection. The latter manifests itself in the histological picture eventually obtained on making a microscopic examination of pieces of tissue removed from the tubercular larynx. It may be taken as an axiom that tubercular tissue which is not markedly infiltrated with small cells, which is rich in giant cells but poor in bacilli, gives a better prognosis than when there is considerable small cell infiltration, which compresses the vessels, degenerates and rapidly leads to breaking down or ulceration.

Having already described the conditions under which the energetic method of treatment may prove of value (Vol. VII., pp. 421, 422), it is now desirable to consider more fully the dark side or dangers which may be associated therewith.

From this point of view we have to take into account (1) the painfulness of the proceedings, (2) the chances of severe hæmorrhage, and (3) the possibility of a general tubercular infection in consequence of surgical measures carried out in tissues which have undergone tubercular degeneration. As for the pain of the operation, this can now-a-days be reduced to a minimum by the appropriate use of cocaine. I shall enter into the details regarding this in the description of the *technique*. At present I shall content myself by remarking that, with a perfect mastery of the *technique*, and using the adjustable sharp double curettes, modified

by me and made by Windler, the operation can be carried out quickly, and as a rule is well borne by the patient. One must not forget, however, to let him know that the pain caused by the operation does not immediately pass off, but, on the contrary, is sometimes aggravated for a couple of days. Further, the following very important facts must be explained to the patients: (1) that generally the surgeon can give no guarantee of perfect recovery by means of the operation to be undertaken; (2) that several sittings are necessary for the removal of the diseased parts; (3) that in spite of a successful operation recurrence may take place sooner or later.

As to the danger from hæmorrhage. In two hundred and seventy cases in which the surgical treatment has been employed, I have seen severe bleeding only twice. On the first occasion the case was in the hands of one of my assistants. After a large piece had been removed with Landgraf's curette from the left false cord, which was firmly infiltrated, and even causing stenosis of the larynx, a very severe hæmorrhage set in, which continued for about two hours. The second case had been operated upon by me, and again it was the tumour-like hard false cord, which bled for a considerable time. Since then no hæmorrhage of importance has occurred in my practice after curettement.

Prolonged bleeding, which I observed twice after removal of infiltration from the anterior surface of the epiglottis, was checked in the following way:—I painted the epiglottis with a twenty per cent. solution of cocaine, removed with a wool pledget all traces of clotted blood, and applied to the bleeding spot which was then visible a mixture of equal parts of liquor ferric perchloride and eighty per cent. lactic acid solution. A loosely-sealed, black, coagulated mass formed, and the bleeding soon ceased. I have never seen spurting vessels after the operation. If the hæmorrhage persist, I exert slight pressure for a minute or two on the bleeding spot with a brush which has been dipped in the above mixture; this has hitherto sufficed.

I consider it advisable, however, to destroy hard tumour-like tubercular infiltrations of the false cords by means of electrolysis or the galvanocautery, in order to avoid serious bleeding. As to whether the wounded surfaces are to be treated with lactic acid after curettement depends on whether we have succeeded in removing all the diseased parts with the simple or double curette. When this is not the case owing to the site, or extent of the infiltration, or because of the operator's deficient manual dexterity, or occasionally for want of suitable instruments, I consider the application of a mixture of lactic acid and perchloride of iron immediately after the operation to be indicated and beneficial. Under the influence of these medicants the chances of a secondary hæmorrhage are diminished, a rapid contraction of the parts operated upon being produced. The tissue having drawn itself together, becomes covered with a scab, which remains in position from two to five days, heals very quickly and the difficulty in swallowing is soon removed. A twenty per cent. solution of cocaine must be applied before painting in order to mitigate the pain.

The question still remains to be discussed whether in general the

operation itself is accompanied by danger to the patient. Besides severe bleeding—which, as above stated, I have seen twice, and which can be avoided if hard tumour-like infiltrations of the false cords are treated with the galvano-cautery or by electrolysis, instead of with the double curette—the objection which has been raised on some sides has still to be met, namely, that by a local operation in a tuberculous larynx the outbreak of a general tuberculosis can be hastened or excited.

Hitherto I have not witnessed such an event, although the opponents of the energetic treatment of laryngeal phthisis have brought it forward. Lermoyez has published a case of this kind, and Sokolowski states that he has had a similar experience. It is, however, rather difficult to prove that a generalization appearing after the local operation was simply caused by the operative act, and that it certainly would not have appeared but for the operation. The few observations hitherto recorded, compared with the remarkable number of cases in which this has not occurred, weaken the strength of the argument very considerably. Further, the objection loses force in consequence of the publication by Dr. Srebrny in the "*Medycyna*," 1892, of a careful collection of a large number of cases of tuberculosis of different organs treated by local surgical measures, in which, in spite of the operation, no generalization had taken place.

I shall conclude this portion of my paper by making the following remarks: Superficial tubercular ulcers of the vocal cords, or deeper but isolated ulcerations of the epiglottis, false cords, or arytenoid region, even though they be covered or surrounded by soft granulations, are most quickly excited to cicatrization by treatment with twenty-five to eighty per cent. solution of lactic acid.

This method, which demands some skill and experience under any circumstances, is to be preferred, in spite of its greater painfulness, to various methods recently recommended and employed, such as insufflations of iodoform or iodol, painting with menthol, Peru balsam, pyoktanin, etc. With the agents last named the results occasionally obtained are cleansing of the surface of the ulcer and stimulation to the formation of granulations, but they require more time, and in their action upon tubercular infiltration are as good as useless. In patients who are in a position to visit health resorts, where appetite and strength are not yet seriously impaired, who are only slightly or not at all feverish, and who have no difficulty in deglutition, the medicaments already mentioned when used regularly for a prolonged period occasionally prove of service. In such cases there must be a careful avoidance of all that is hurtful, and the voice must be husbanded. The serious affections such as hard infiltrations, deep ulcers and their proliferating products, when the case is suitable, and paying due regard to the indications already set forth, must be treated surgically in order to attain our object more quickly.

The detailed description of the operative procedure will be published in a later number.

**ELEVENTH INTERNATIONAL MEDICAL CONGRESS
IN ROME.**

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March 30th, 1894.

INAUGURAL ADDRESS.

By Dr. FERDINANDO MASSEI, *President of the Section:*

Professor of Laryngology in the University of Naples.

Gentlemen—In welcoming you as our guests in this city—once the mother of the world—I am irresistibly reminded of the date (6th August, 1890) on which the Eternal City was chosen as the place of reunion for the Eleventh Congress. The cry “To Rome, to Rome,” which then rose to the lips of everyone, was not a cry of war but a signal of peace and civilization—an expression of sympathy towards a young nation. Having received our political baptism, you come here to the very heart of the kingdom as representatives of science and progress, to give us the baptism of modern medicine—the continuation of the glorious traditions that have always won respect for the Italian school.

While I feel the difficulty of our being able to return even a part of the many kindnesses received when we were your guests, I am sure that from your efforts in this meeting suffering humanity will derive incalculable benefits. Your work is particularly salutary in days like the present, when the labours of honest and independent scientific men should raise a barrier to the spirit of destruction, and should hold aloft the flag of peace and progress.

To-day the whole world turns its gaze towards Rome, where so many powerful personalities, so many strong intellects, are united. The committee of direction has confided to well-known and valued colleagues the solution of certain problems. If this, even in part, can be accomplished, the labours that you undertake will be compensated by the blessings of those who will find in your knowledge either relief or protection from the sufferings and dangers to which they are subject.

In inaugurating the work of our section, and in welcoming the array of unwearied pioneers of laryngology I see before me, I feel bitterly the void left by those—young and old, authorities and novitiates—who have been mown down by the inexorable scythe of death, leaving to us the indelible memory of their writings, their work, and their character. I would lay a regret and a flower on the tomb of Jelenffy,¹ Michelson,² Sir Morell Mackenzie,³ Beregszascy,⁴ Behnke,⁵ Krakauer,⁶ Hooper,⁷ Charazac,⁸ Felici,⁹ Schnitzler,¹⁰ Köeller,¹¹ Joly,¹² so soon removed from life, leaving, all of them, respected and treasured memories.

Gentlemen, few specialties have reached in less than forty years the very remarkable development attained by laryngology and rhinology. This thought, which comes readily into one's mind, leads us to inquire into the causes. In my opinion, the most striking causes are these two: firstly, the splendid results of local treatment; and secondly, the connections worked out between diseases of the larynx and nose and those of other organs and tissues. In other words, it is due to a development of therapeutics, which has created great specialists, and of diagnosis, which has brought forward clinicians of value. Hence, without perceiving it, we have assisted at a transformation by which laryngologists and rhinologists now owe the reputation they enjoy more to their proved clinical work than to their operative ability.

These outgrowths, sprung from a great tree in which biology has transfused new life, would have failed and fallen if they had asserted their independence—not in abjuring their origin, but in refusing their contribution. Branches of a great and vigorous trunk, they represent indeed the fertile results of the application of experimental science, and help to demonstrate how medicine freed from the fetters of empiricism has become modern naturalism.

And thus I would say that laryngology and rhinology from an art have become a science, and that those who would choose them as objects of study should assume a double task—firstly, that of mastering the *technique* required for examination and operation; and secondly, that of never allowing any fact to escape them which might clear up any of the great problems of clinical medicine.

The modern specialist, then, does not represent a fraction of medicine only, but the whole of it and a fraction more. He is a special cultivator of one branch, and a complete clinician in the whole subject.

Division of labour has been an advantage to modern progress because, by concentration of force, it has revealed new facts, developed new

¹ Zoltau Jelenffy, of Budapest. Aged 43. Died 23rd August, 1890.

² Paul Oscar Michelson, of Königsberg. Aged 45. Died 21st December, 1891.

³ Sir Morell Mackenzie. Aged 55. Died 4th February, 1892.

⁴ Julius von Beregszascy (Schnitzler's Assistant). Aged 46. Died 10th August, 1892.

⁵ Emil Behnke di Stettino. Aged 56. Died at Ostend, 17th September, 1892.

⁶ Alfred Krakauer, of Berlin. Died 19th October, 1892.

⁷ Franklin Henry Hooper, of Boston. Aged 42. Died 20th November, 1892.

⁸ J. Charazac, of Paris. Aged 34. Died 1st January, 1893.

⁹ Francesco Felici, of Rome. Aged 33. Died 29th April, 1893.

¹⁰ Johann Schnitzler, of Vienna. Aged 59. Died 3rd May, 1893.

¹¹ Köeller, of Nancy. Aged 26.

¹² Antoin Joly, of Lyons. Aged 49. Died May, 1893.

conceptions, created a new science. But when we consider the goal of medicine, its application, and its development, it is not possible to suppose that anyone who has to treat a lesion circumscribed to a given point, or limited to a given organ, can limit his view and understanding to that point only. Etiological diagnosis—the most interesting and necessary from the point of view of treatment—would be stultified in such a case, the reputation of the practitioner would be compromised, and he would fail as a guide in not being able to judge as to which cases should receive local treatment, and which should be locally left alone. The expert laryngologist who overcomes a thousand difficulties, and recognizes an ulceration without settling its nature, would excite the hilarity of an expert clinician, and would risk injuring his patient. On the other hand, the morbid processes which attack the larynx are so numerous, so frequent, and so often connected with maladies of the naso-pharynx, that not only must one trace cause and effect, but also add an examination of neighbouring and associated organs. This fact has immensely enlarged the confines of this special branch. It is a shame to science that some should continue to repeat—more through malice prepense than through want of knowledge—that we have to treat a very limited branch, of small extent in practice, when our crowded out-patient rooms and the valuable writings on the subject are there to prove the contrary. It was not without reason that I said “through malice prepense,” since it is not possible to suppose that an impartial scientist cannot understand the numerous and important bonds linking laryngology to general medicine. If for a moment we think of the great frequency of croup, of diphtheria, of acute infectious diseases attacking the throat, of spasm of the glottis, of the numerous and various accidents produced by foreign bodies in youth, it is clear at first view that, without trespassing, laryngology now and then invades the territory of pediatrics. If we turn to the terrible frequency of laryngeal syphilis and tuberculosis, we see at once what a considerable contingent is made up by these two morbid processes, for which both syphilography and internal medicine contend. It will be enough to recall the structure of the organ, its connections, its central and peripheral innervation, to understand that lesions of the neck and thorax, in thousands of combinations and occasions, can excite laryngeal phenomena, sometimes the prevalent if not the unique symptom. It is sufficient to recall the nearness of the orbit to the nasal cavity to foresee how certain forms of exophthalmos are associated with diseases of the sinuses.

The conclusion of this is, therefore, that a specialist cannot limit his task and his aspirations. At every fresh step of knowledge he should look over, and winnow at his case, a phenomenon which may be the key to an involved series of pathological facts.

So with regard to the medical student. Although medicine has immeasurably enlarged her field of investigation, it is not to be thought that the particularized study of morbid processes attacking a given organ and visible to the endoscope is a different science to that included in the student's curriculum. This study would add but a small burden to the heavy load which the difficulties of science already impose on him.

The means at our disposal enable us to examine an organ, facilitate the study of anatomical diagnosis, establish fixed data, and represent the most secure ground for formulating with greater exactness an etiological diagnosis. Then hearing from his teacher's lips the signification, value, and connections of a lesion—ideas gathered by assiduous labour and drawn from observation of numerous facts—the student no longer wanders in the sphere of the indeterminate, but from probability passes to certainty, and from guesses to laws.

It is true that a long road has still to be travelled, but that part we have passed along with dizzy rapidity has affirmed the importance of laryngology and rhinology in practice, and has demonstrated the absolute need of it amongst the fundamental subjects of study. The large phalanx of specialists, the great number of teachers, the creation of professorships, the numerous clinics, the endless series of publications, and the many special journals, attest this truth better than any words of mine. Our hearts cannot but rejoice at these facts, and the large gathering I see before me of able colleagues from all parts of the globe places the seal of importance on these studies, and shows the necessity of their diffusion.

Imbued with these convictions your executive committee, in deciding on the subjects which could most interest you, has selected those whose solution can most relieve the sufferings of humanity. I allude to the treatment of laryngeal tuberculosis, the solution of which problem will be one of the greatest victories; the treatment of deviations of the nasal septum—causes of strange and multiple morbid manifestation; and intubation of the larynx, a great therapeutic resource destined to reduce the indications for tracheotomy. In asking you to review the studies on the innervation of the larynx, and its central and peripheral parts, your committee has thought that a useful contribution might be made to a grave problem which interests equally the specialist and the general clinician. I may say the same for pachydermia laryngis, which yields, both in its clinical expression and its demands for treatment, a subject of discussion full of actuality.

In confiding the debate on these grave subjects to men of authority, the executive committee trusts that it has interpreted the wishes of all. In the firm conviction that from this great meeting science will gain renown and humanity secure relief, we inaugurate joyfully the work of the section. I repeat in the name of Rome, who receives you, and humanity, who turns to you, a fraternal welcome.

CONTRIBUTION TO THE ETIOLOGY OF THE SO-CALLED FOLLICULAR ANGINA.

By Dr. JOHN SENDZIAK (Warsaw).

Gentlemen,—The question of the etiology of the disease known under the term "follicular angina," properly lacunar tonsillitis, because the process is localized only in the crypts of the tonsils, the follicles being

unaffected—is not yet settled. The greatest number of authors, as B. Fraenkel,¹ Ritter,² Goldscheider,³ etc., relying on bacteriological investigations, regard this disorder as an independent pathological process, standing in no relation to the real diphtheria. Others, however, as for instance Sokolowski and Dinschowski,⁴ basing their views on anatomo-pathological researches, maintain that lacunar tonsillitis, to which they add the term “pseudo-membranous,” is only a milder form of diphtheria.

In view of the great importance of the above question from the practical standpoint (prognosis, isolation of the patients, etc.), I resolved to occupy myself with this question, which, in my opinion, can only be settled by means of strict bacteriological researches (cultures, inoculations). This work, which of course forms only a further contribution to the etiology of the above disease, I executed in the bacteriological laboratory of the Child Jesus Hospital in Warsaw, under the personal direction of Dr. Jakowski, chief of the laboratory, as well as with the kind assistance of Dr. Swiezynski, assistant physician.

For these investigations I used twenty-two carefully observed cases, principally from my ambulatory and private practice, the particular description of which will be reported elsewhere.

Clinically, these cases presented themselves as more or less typical forms of lacunar tonsillitis. They were acute cases, almost always accompanied by more or less fever (to 40° C.), very often with more or less marked affection of the lymphatic glands of the neck, with white greyish or yellow points (membranes), localized in the crypts of the tonsils. These cases generally ended favourably in three to eight days, without secondary paralyses. I performed the bacteriological investigations in the following manner: after a careful disinfection of the oral cavity by means of repeated gargles of four per cent. boric acid, I removed, with sterilized forceps, from the crypts of the tonsils the more or less compact and large membrane as completely as possible (often even with small fragments of adenoid tissue), which could always easily be accomplished, sometimes only with small bleeding.

In the beginning I still cleansed this membrane with two per cent. boric acid; later on, however, I abandoned this method, as I did not see its advantage.

The piece of membrane was afterwards rubbed on the object glass slide for microscopic examination (for coloration I always used Loeffler's fluid, *i.e.*, methylene blue and rose). I generally employed an oil immersion lens and Abbé's apparatus.

From the interior surface of the membrane I transferred, by means of a platinum needle, part of the membrane on to the nutritive medium, principally on Loeffler's “blood serum,” which I consider to be the best

¹ “Angina lacunaris und diphtheritica,” 1886.—“Berl. Klin. Woch.”

² See Discussion on Baginsky's Paper, “Zur Aetiologie der Diphtherie.”—“Berl. Klin. Woch.,” 1892, 4 to 10.

³ “Bacterioscopische Untersuchungen bei Angina tonsillaris und Diphtherie.”—“Zeit. f. Klin. Med.,” 22, 24, 25.

⁴ “Przyczynek do Patologii Sprac zapalnych migdałoid.”—“Przegl. Lek.,” 1891, 31.

in such researches, likewise on to glycerine agar, finally on to gelatine. The first two I put into the thermostat (37° C).

Sometimes I inoculated the whole membrane directly on agar, prepared in the usual manner on Petri's plates. A couple of times I also transferred the whole membrane to several eprouvets (Loeffler's method). Several times I transferred also the first cultures on to new media (plates, bouillon).

The cultures were examined as early as twenty-four hours after, first macroscopically and under the magnifying glass, afterwards in a hanging drop, and lastly coloured in the usual manner (Loeffler's method).

The inoculation of the largest possible piece of membrane was made under the skin of the back of guinea-pigs, as they are the most susceptible to the diphtheritic virus (eighteen in number in two cases, namely in the presence of pseudo-diphtheritic bacilli; I used two guinea-pigs in each case).⁵ I regard this method as much surer in view of the possibility of the diphtheritic bacilli being overgrown by other micro-organisms (strepto- and staphylococci), which often grow together with them in the cultures.

Besides in a few cases I inoculated pure culture in the usual way (under the skin of the back) or according to the method of Escherich⁶ (from twenty-four hours cultures in bouillon by means of Koch's syringe, under the skin of the abdomen in quantity proportional to the weight of the guinea-pig).

The inoculation itself I performed in the following manner: after having well cut the hairs on the back of the guinea-pig, and having carefully anæsthetized and disinfected the skin, by means of ether, sublimate, and alcohol, I made with the knife, sterilized by heating in gaslight, a small incision on the skin of the back; afterwards I endeavoured to form as deep a "pocket" as possible under the skin, into which I put the whole membrane, or part of it. The edges of the wound were joined with collodion. After the inoculation the guinea-pigs were kept under strict observation for about three months. I examined the temperature, the state of the wound, the state of the lymphatic glands of the neck and axilla, and later I directed my greatest attention to the appearance of secondary paralyses, etc.

Relying upon the above twenty-two cases, observed clinically and bacteriologically with the greatest care, I arrived at the following conclusions:—

1. In none of the above twenty-two cases were found Klebs-Loeffler's bacilli, the specific organism for diphtheria, as is now generally accepted (Escherich, Karlinski, myself, etc.).

This is in conformity with the results obtained by other authors (B. Fraenkel, Ritter, Goldscheider, etc.).

2. In four of these cases I found Hoffmann Loeffler's pseudo-diphtheritic bacilli—not alone, but together with other micro-organisms (three times

⁵ In six cases I made only cultures, without inoculations on guinea-pigs.

⁶ "Zur Frage des Pseudo-diphtherie Bacillus und der diagnostischen Bedeutung des Loeffler's Bacillus."—"Berl. Klin. Woch.," 21-23, 1893.

⁷ See my paper, "Rhinitis crouposa, ant-diphtheritica."—"Monatschr. f. Ohrenheilk.," 1893, 2, 3.

with staphylococci, once staphylo- and streptococci). Escherich reports also that he found them in cases of follicular angina; likewise Goldscheider, in six out of twenty-nine cases. Morphologically they differed a little from Klebs-Loeffler's bacilli, *i.e.*, only by the tendency to parallel agglomeration and by a brownish coloration of the older cultures. These are the trait which Escherich lately reported as characteristic of the pseudo-diphtheritic bacilli. The most important criterion, however, which allowed of distinguishing them from Klebs-Loeffler's bacilli was the negative result of inoculation on guinea-pigs. What is the significance of pseudo-diphtheritic bacilli? The French school, with Roux and Yersin at the head, whom E. Fraenkel⁸ has lately joined, maintains that they are diphtheritic bacilli, only deprived of their poisonous character; the German school, however of which Escherich is the greatest exponent, regards Hoffmann Loeffler's bacilli as independent. Escherich,⁹ in his last excellent paper about this subject, expresses himself in the following manner: "alle diese Gründe veranlassen mich, vorläufig den pseudo-diphtherie bacillus, als eine selbständige Art zu behachten."

3. In the remaining eighteen cases I found:

(a) Staphylococci alone in six cases.

(b) Streptococci alone in two cases, at last.

(c) Mixed forms, *i.e.*, staphylo- and streptococci in ten cases (in six of them staphylococci, and in four streptococci were in abundance).

This agrees almost entirely with the results obtained by B. Fraenkel (who found in his cases only diplococcus and staphylococcus aureus et albus), Ritter, and lately Goldscheider (from Leyden's clinic in Berlin), who found staphylococci in eleven, streptococci in six, and mixed forms in eight cases.

Comparatively seldom—namely, in two cases—I found the pure culture of streptococci. It would seem that this kind of bacteria is very seldom to be met with (Lingelsheim,¹⁰ on the contrary, found only streptococci in this disorder). We must, however, not forget the fact, which is very well known in bacteriology, *i.e.*, that the streptococci, cultivated in the earlier days, may be overgrown afterwards by staphylococci. In a couple of cases I could convince myself of it. Goldscheider also reports this fact. Therefore, it is very important to note in which period of the disease we perform bacteriological investigations. In my cases this period lasted from one to five days mostly (namely, in eleven cases). I extracted the membranes for these researches on the second day.

4. As to the course of the disease, it was in four cases (*i.e.*, where the pseudo-diphtheritic bacilli were found) a little severer, as in Goldscheider's cases. In the remaining eighteen cases, however—these were mostly not quite typical cases, with more extended membranes—no distinct influence of this or that type of bacteria (staphylo- or streptococci) upon the clinical picture of the disease could be remarked. Goldscheider, on the contrary, observed in his cases a more severe course of disease in the presence of streptococci.

⁸ "Berl. Klin. Woch.," 1893, 9.

⁹ *Loc. cit.*

¹⁰ "Beitrag zur Streptococken Frage."—"Zeit. für Hyg.," 12, 1892.

5. These micro-organisms had no special character, and did not differ in any way from the common staphylo- and streptococcus pyogenes. Mostly they were staphylococci albi, and in three cases only I found staphylococcus aureus and albus together. As to the streptococci, they were principally in short chains. Sometimes they also happened to be very long and crooked, mostly composed of single smaller or greater cocci; once only of diplococci (diplostreptococcus, Barbier¹¹).

Relying upon the clinical picture of this disease, and the results obtained by bacteriological investigations in my thirty cases, I maintain that the so-called follicular angina, or, better, lacunar tonsillitis, is clinically and histologically an independent pathological process, having nothing in common with true diphtheria. It is no doubt infectious, but we, unfortunately, do not know its specific virus.

[After finishing this paper, I had occasion to examine bacteriologically eight new cases (in all thirty):—(1) In three of these cases I found pseudo-diphtheritic bacilli (once together with staphylococcus aureus); (2) three times staphylococci (once staphylococcus aureus and albus; once staphylococci and streptococci together—especially staphylococci); (3) once I found pure streptococci.]

THE CLASSIFICATION AND THERAPEUTICS OF PACHYDERMIA LARYNGIS.

By Prof. CHIARI (Vienna).

(Abstract.)

The verrucous form of pachydermia is identical with the papilloma of the laryngologist, and has no relation to the diffuse form. Diffuse pachydermia may be primary or it may be secondary to some other affection of the larynx, such as tubercle or syphilis. In Prof. Chiari's experience typical pachydermia is a very rare disease. He describes several forms.

I. The most frequent and mildest form is a thickening and loosening of the epithelium of the inter-arytenoid fold and vocal cords, such as occurs so frequently in chronic catarrh. The treatment is that of chronic catarrh, consisting of inhalations, insufflations, and especially applications by means of a brush, and cauterization. The best applications are those of lactic acid or iodine, but nitrate of silver is apt to cause increased thickening of the epithelium. If there is a well-marked localized thickening ("singer's nodule") it may be removed by means of fine cutting forceps. Small singers' nodules may disappear under the influence of rest, or simple applications of nitrate of silver in solution, or in the solid stick. If they are of considerable size the forceps is to be preferred.

II. The typical form of pachydermia laryngis, as it affects chiefly the vocal processes, calls for a plan of treatment varying according to the circumstances of the case, and authors differ greatly in their opinions.

¹¹ "Sur un streptocoque particulier trouvé dans les angines à fausses membranes."—"Ref. T. C., 1893, 12.

Some recommend purely expectant treatment, avoidance of tobacco, strong drinks, or abuse of the voice; others recommend the internal administration of iodide of potassium, which, though occasionally of some benefit, may also at times produce general impairment of health. Prof. Chiari recommends the use of electrolysis, as employed by Moll, of Arnheim, a current of from ten to twelve milliamperes for from three to five minutes at a time. He considers it the best means for preventing recurrence, but good results have also followed operation by means of any of the ordinary cutting forceps, or cold or electro-caustic snares.

III. Large genuine pachydermic growths in the inter-arytenoid fold interfere very materially with the voice. Unfortunately, treatment by means of cutting forceps, hot or cold snares, etc., does not guarantee freedom from recurrence.

IV. The last group includes those circumscribed thickenings out-growths or nodules which accompany tuberculosis, syphilis, chronic perichondritis, and perhaps also lupus, which have been referred to as "secondary" or "accessory" pachydermia. Their prognosis depends on their etiology, as also does their treatment, the latter varying according to the nature of the most distressing symptoms. Naturally the syphilitic form is much more favourable than the tuberculous, but it not unfrequently resists treatment by means of the ordinary specific remedies. Operative treatment of the same kind as for the typical primary form is called for in suitable cases—that is, if the general health is good, and the respiration or voice is seriously interfered with by the local disease. The method of treatment which, so far, is most to be recommended is the use of electrolysis by means of a bipolar instrument, with a current of from ten to fifteen milliamperes. This causes no reaction, and seems to protect against recurrence better than any other treatment.

"There is no doubt that pachydermia laryngis, whether in the simplest form in the inter-arytenoid space, or in the typical form on the processus vocalis, is only a symptom of chronic catarrh, and not to be looked upon as a disease in itself."

March 31st, 1894.

LARYNGEAL INTUBATION IN ADULTS.

By Dr. SCHMIEGELOW (Copenhagen).

(Author's Résumé.)

Intubation cannot replace tracheotomy and be adopted as the principal method of treating acute stenoses in adult patients, but on the other hand it may claim many successes in the treatment of chronic stenoses. It is especially in cases of cicatricial stenoses that intubation has been frequently employed.

1. If we are dealing with slight degrees of stenosis where the passage is large enough to introduce tubes, we proceed in the following manner: an exact comprehension of the nature, etc., of the stricture is first obtained by laryngoscopic examination, and intubation is preceded by

endo-laryngeal operations, extirpation of membranes, etc. I employ Lefferts' instruments for intubation. How often can we leave the tube *in situ*? It is necessary to gain experience from each case. I have treated patients who have been intubated for over a year, and in whom the tube has been changed only once a month.

2. If we find the presence of strictures so great that we cannot introduce tubes large enough to allow the patient to respire, the treatment becomes more complicated.

(a) We may commence by dilating the stenosis by endo-laryngeal operations, until large tubes can be introduced.

(b) We may also commence with the introduction of Schroetter's bougies, and continue until the stenosis is so far dilated that the tubes can be introduced.

(c) We may commence by the immediate performance of laryngo-fissure in order to remove the obstruction causing the stenosis, and then proceed to intubation.

3. Complete obliteration of the larynx ought to be treated by—

1. Laryngo-fissure with excision of the diaphragm : then

2. Intubation, in order to prevent the reproduction of the diaphragm.

Dr. HERYNG (Warsaw) related the case of a child in which relief was only obtained by means of thyrotomy and the excision of the cicatricial tissue, which obliterated the upper part of the trachea. He introduced into the trachea a caoutchouc seven centimètres in length, seven millimètres in diameter, and with walls of the thickness of two millimètres. He made an opening in the wall of this tube, through which he introduced a fenestrated canula. The shorter part of the tube reached for half a centimètre beyond the vocal cords and the longer part lay in the trachea. The tube did not interfere with swallowing and was left *in situ* for ten days, when there was substituted for it a T-shaped tube. There was no growth of granulations round the tube, and the tracheal passage remained open. The advantage gained was the restoration of the voice, although the canula could not be removed. Dr. Heryng employed the same plan of treatment in two other cases of stenosis, one of the larynx, the other of the trachea. The details of the *technique* will be published.

Dr. SCHMIDTHUISEN (Aix-la-Chapelle) thought it unnecessary to make an external opening, as in two cases of complete closure of the trachea, or of trachea and larynx, he had adopted the following plan. He pushed a sharp-pointed sound from the trachea through the cicatricial tissue till its point appeared between the arytenoids. This was left for half an hour, and was then replaced by a thicker one. When the canal is sufficiently large, a laminated tent was introduced, and secured by means of a silk thread attached to its lower extremity. The thick part was introduced into the trachea, and the point was then pushed upwards by means of a small pair of forceps. After a few days solid dilating wedges (Bolzen) were introduced of gradually increasing thickness, and were retained day and night without causing any discomfort. Within three weeks there were substituted for them canulas of the same shape. The patients were able to insert them for themselves.

Prof. F. MASSET (Naples): I do not know why in certain quarters tracheotomy should be accepted with difficulty; it is certain that I have been able to perform in three or four years in adults as many intubations as I have done tracheotomies in the course of all my career. With your permission I may refer to the results of my practice, and while complimenting Dr. Schmiegelow on all he so well said, I would lay stress on the two following points as giving the precise indications for intubation:—1, the anatomical diagnosis; 2, the etiological diagnosis.

The first shows us if there is a passage which the tube can traverse and in which it can be placed; the second informs as to the curability or non-curability of the process. In this way we prefer tracheotomy for cancer, tuberculosis, etc.; we find intubation contra-indicated in cicatricial stenosis (without tracheotomy), in tumours, etc. But also in processes which may result in cure, like syphilis, one must use one's judgment. There are cases of syphilitic perichondritis (and I have had a case) in which intubation could be harmful. But do not let us forget that, even in cases of incurable disease in which we are too pressed for time to perform tracheotomy, intubation is useful (combined method), and I have had such important cases. Dr. Rabot, of Lyons, has charged me to say in his name to this meeting that he is at present a firm partizan of intubation, and I end by expressing the desire that intubation should receive the merit due to it, avoiding all exaggeration, and I here show you a fenestrated tube of O'Dwyer.

Dr. MICHAEL: In judging of the results of treatment of stenosis we must be careful, because in children, sometimes also in adults, the stenosis is removed naturally. From the literature of the subject I have collected a great number of cases, most of which were cured. I would here communicate the following pertinent case. In a child three years old, suffering from papilloma, I was forced (in spite of having been successful in removing part of the growth from above) to perform tracheotomy on account of threatened suffocation. Fourteen days later I followed this up by splitting the larynx and extirpating the growth, which was sand-glass shaped and situated half above, half below the vocal cord. The thyroid was united by stitches. The removal of the canula was hindered by an intercurrent attack of pleuro-pneumonia. When this was over, after six weeks, the removal of the canula was impossible.

What was the cause? Recurrence there was none, the voice was excellent, even a "singing voice" present. Intubation or Schroetter's dilators I did not wish to try, because I was convinced that then the larynx would yield at the locus minoris resistentiæ—*i.e.*, the stitches would give. It would still be doubtful whether the canula could be removed, certain that the voice would be destroyed. As further dilatation from below or the removal of a small portion of the trachea promised no better results, I left the whole affair to itself, and had the great joy of being able after two years to remove the canula and dismiss the child completely cured and with a loud singing voice. The child's larynx increases in a natural manner with its growth, and so procures of itself the necessary air-space. Sometimes even in stenosis in adults, if they are not purely cicatricial, natural healing occurs.

Dr. TOTI asked Drs. Heryng, Schmiegelow and Schmidhuisen how often they had been able to remove the canula in cases of true cicatricial stenosis.

Dr. LUBLINER (Warsaw) had employed a method similar to that of Dr. Schmidhuisen, with slight modifications, and had published it in the "Therapeutischen Monatsschrift" in 1891, and Dr. Catti had also employed the same. He made use of a thin sound, with an opening at its lower extremity for the reception of Schroetter's wedge. This method of introducing dilators from the tracheal opening had given him good results. In a very severe case the voice, which had been quite lost, was completely restored. Patients can early learn to introduce the instruments. The method is valuable in cases of stenosis in children following tracheotomy, produced by granulations below the vocal cords.

Dr. SCHMIDTHUISEN said that Catti's forceps had nothing to do with his own wedges (Bolzen), which did not require any such means as that of Schroetter's to keep them fixed.

COMPARISON between ELECTROLYSIS and other METHODS of TREATMENT for the DESTRUCTION of DEVIATIONS and SPURS of the NASAL SEPTUM.

By Dr. E. J. MOURE (Bordeaux).

Being desired by the committee of organization of the Laryngological Section to bring before the Congress my method of electrolytic treatment of deviations and spurs of the nasal septum, and to discuss the value of this method compared with other intra-nasal surgical procedures, I shall endeavour to expose the subject in a few words.

I will merely recall the French origin of this method of treatment, which, originating first with Dr. Miot of Paris, then a little later with Dr. Garel of Lyons, as a monopolar method, was later still perfected in its operative *technique* by Prof. Bergonié of Bordeaux and myself. I described our method of performing it at the Congress of Berlin, and have had, since that time, the satisfaction of seeing our method applied generally with success in all parts of the scientific world. I cannot here review all the memoirs or cases published relating to this subject since 1890—their enumeration would be tedious. I shall confine myself to the remark that our method of electrolytic treatment has not been modified. It is the bipolar method to which we always give preference (recommending steel needles, which, while being more resistant and less dear than platinum, also penetrate more easily into the portions of cartilage which it is desired to destroy). I will only briefly mention the operative *technique*, which we have described at length in our memoir upon this subject.¹

Each needle is covered with a hardened caoutchouc mandarin (end of a urethral sound), which not only isolates it, but permits of the exact

¹ "The Treatment of Deviations and Spurs of the Nasal Septum by Electrolysis." By Drs. J. Bergonié and E. J. Moure, Bordeaux. Paris, 1890.

imitation of the depth of tissue to be destroyed, and is buried in the axis of the nasal fossa, parallel to the septum. The negative pole is placed, according to the case, over the centre of the spur, and the positive pole outside or above this latter. An important point is not to put any needle too near the base of the deviation, in order not to expose the septum to perforation. According to the volume and hardness of the growth to be destroyed, the intensity of the current should vary from eighteen to twenty-five milliampères, and last from twelve to fifteen minutes. When the needles are well placed, these intensities suffice for the destruction in a single sitting of a spur or septal outgrowth in most cases.

It scarcely needs mentioning that the needles are combined with an electric battery of at least thirty couples, connected with an ampère-mètre, and an immersion rheostat.² The latter offers the great advantage of graduating slowly and without shock the electrolytic current, and diminishing it.

It should be added that during electrolysis the opposite fossa ought to be watched through a speculum, *i.e.*, the undeviated septum, in order to make certain that no gas escapes from this side, which would indicate that the electrolysis is carried beyond the point wished.

We do not hesitate to say that well managed this treatment serves for the majority of deviations, crests, and spurs of the nasal septum. It has the advantage, as we have formerly pointed out, of being rapid enough, of succeeding at one application, and if well applied, of being only slightly or not at all painful. Lastly, the bleeding is insignificant, an important consideration in operations of this kind.

Should we now consider electrolysis as the only means of obtaining the disappearance without pain and without hæmorrhage of the lesions under consideration? Can we employ this proceeding to the exclusion of every other? To affirm such a proposition would be incontestably to push too far the affection for any method.

There exist, indeed, other methods, which we shall rapidly review.

First, the sanguinary operation with the American drill, making channels in the portions of the cartilage to be destroyed; then the saw recommended in America, and almost universally employed in this country. These methods have the undoubted advantage of being rapid, but have the inconvenience of being sanguinary. The flow of blood is always abundant and occurs early, the mucous membrane and the field of operation is covered with blood, and the operator has to work somewhat blindly, often terminating his operation. I know well that very experienced practitioners succeed in rapidly destroying a septal projection, and that the operation, rapidly conducted, has been performed with all desirable perfection. But, besides the inevitable gropings about at the commencement, it is not always possible to act rapidly, and, consequently, to have the part to be operated upon well under view. This is, to my mind, a grave inconvenience of any sanguinary proceeding called rapid. The blood flow is generally pretty easily arrested, and a tampon, properly applied, generally suffices to obtain hæmostasis, but this has often to

² Rheostat of Prof. Bergonié.

remain *in situ* several hours, and the patient is obliged, moreover, to keep his room, or at least remain quiet. I have, seen, indeed, in one case operated upon by the drill, a very abundant hæmorrhage, due to the fact that the patient, a blacksmith by trade, had resumed his work a few hours after the operation. Such an accident in an operation so simple in appearance seems to me out of relation with the operation practised.

Resection performed with gouges and various osteotomes is subject to the same inconveniences, but they exact less skill on the part of the operator, and illumination of the field of operation is not so necessary. Once the outgrowth is engaged in the light of the instrument which I have the honour to present to you, or attacked by the gouge, section is practised without being occupied with the operative surface, and, when the blood flows, the operation is ended; but here provisory tamponing is still necessary, and the patient ought to abstain from all exaggerated manual labour during the twenty-four hours following the intervention.

We must recognize these as valuable methods in cases in which the spurs or crests are but small, and situated near the entrance of the nose, as is most frequently the case.

There is one other process which approaches in its advantages to electrolysis, and in which electricity is called into use—this is galvanic ignipuncture. This has indeed the advantage of being painless, thanks to cocaine, and of leading to no outflow of blood. It can be employed with the knife applied flat to the outgrowth to be destroyed, or by making channels, with the galvanic point buried little by little in the thickness of the spur. We can thus separate at the base crests pretty prominent, and give to the deformed septum a plane surface. This is a method which we willingly recommend to practitioners not possessing an electrolytic battery, and desirous of always commanding the field upon which they operate. I have many times had to adopt this method, and always with success. It is well, once the eschar is detached, to level the surface either with the galvanic knife applied flat, or with the osteotome which I have the honour to present to you.

I only refer to forceps, punches, and apparatus for straightening, since on the one hand we wish to avoid perforation of the septum, and on the other hand the object of this paper is to consider methods of destruction and not of straightening.

I will resume thus :—In deviations with great thickening we ought to use electrolysis alone, or associated with galvanic destruction. In the case of small spurs, the latter proceeding employed alone under the form of ignipuncture will suffice in most cases to obtain the desired result. These two methods have the advantage of being nearly painless, and of occasioning no blood flow, and consequently of allowing us to act with all safety.

Dr. SAJOUS, while expressing his admiration of the method devised by Dr. Moure—bipolar electrolysis—feared perforations of the septum an accident already reported; he preferred a perforation, but made after the elevation of the mucous membrane. The outgrowth is thus replaced by a concavity easily recovered by the flap of mucous membrane.

Dr. BOTEY : Dr. Moure has forgotten to speak of the cases in which

there does not exist any thickening—that is to say, cases in which the septum is simply deviated, especially vertically. In these cases we should unpardonably produce a perforation by electrolysis. It is necessary to straighten the septum, and, as it is always too large, it is necessary to make a small resection of the quadrangular cartilage, because, whatever apparatus is employed, the septum always returns to a vicious position.

Dr. ROSENFELD : Deviation of the septum has to be treated variously, according to whether there is simply a deflection or a thickening of the cartilage or bone, a cartilaginous or bony spur or crest. In the first form a cure is most easily obtained by raising the mucous membrane and removing by a submucous and subperichondral resection a portion of the cartilage as large as may be necessary to allow free passage for air, it being better to remove too large rather than too small a piece. As regards solid thickenings of the septum, it is difficult to remove them with knives and scissors, but electrolysis is most strongly to be recommended. Cartilage melts away under its action like butter under a hot sun. Only one operation is needed, and this is applicable to bony outgrowths as well, if the bone is not too dense—that is to say, if it can be penetrated by a needle.

Dr. RUALT thought that the indications for the treatment of deviations and crests of the nasal septum were never of an aesthetic character. The patient possesses a spur, the pressure of which upon the turbinateds leads to reflex phenomena, and in this case the best thing is to resect the projecting portion with the cutting punch ; or there exists a marked deviation impeding respiration, and then it is necessary to restore permeability to the obstructed nasal fossa. In the latter case, whether or not there be an enlargement or simple deviation, if there is a pyramidal outgrowth in one nasal fossa, the method of choice is electrolysis, which assuredly leads to the desired result. The operation is almost painless if the operator possesses a good rheostat : it is not followed by any reaction ; moreover, its effects are felt progressively, and we have no fear of obtaining only temporary results, which occurs often when we adopt sanguinary methods. As to the possibility of perforation, this is absolutely immaterial—indeed, it is often necessary to seek it in place of endeavouring to avoid it, and this is the only rational intervention in cases of total lateral deviation. As to plastic operations, advised by Petersen, Chatellier, and others, their value is purely theoretical.

Dr. CHIARI employed two methods. In simple deviations he resected the cartilaginous septum in the form of a triangular flap and kept this in an “over-corrected” position by means of iodoform gauze plugs for two or three weeks. He removed crests by means of the saw. Electrolysis was often employed for crests, but it took a long time.

Dr. MOURE replied to Dr. Sajous by endorsing Ruault's remarks that with electrolysis we have no accidents. It is difficult to understand how Botey resects under the mucous membrane a septum not thickened, but simply deviated. In these cases I prefer a quickly made perforation, permitting the access of air into both nasal fossae. Lastly, I remark to Dr. Ruault that I do not consider electrolysis to be the only and exclusive treatment of deviations, or rather of crests and spurs of the septum. It

is necessary to consider different cases and individual patients before adopting this method.

On the STRUCTURE and HISTOLOGICAL ARRANGEMENT of the SO-CALLED FIBROMA of the VOCAL CORD.

With Demonstrations of Microscopic Preparations, Drawings, and
Photographs.

By Prof. O. CHIARI (Vienna).

Before commencing the description of my researches and their results, I would shortly mention that almost all laryngoscopists and anatomists adopt Eppinger's¹ views on the structure and histological arrangement of fibromata of the vocal cords. I will, therefore, describe shortly his accounts thereof.

Eppinger designates fibromata of the vocal cords "fibroma tuberosum," in contrast to the papillomata, which he calls "fibroma papillare." The fibroma tuberosum consists, according to him, in a circumscribed, hyperplastic growth of the deeper mucous membrane, or of the submucous connective tissue in form of a nodule, which soon rises above the level of the surface of the mucous membrane of the larynx, and is covered by the most superficial layers of the mucous membrane. He distinguishes broad and firmly-based, and pedunculated (the latter when the mucous membrane is drawn forward by the fibroma-nodule in the form of a stalk), blue and red, hard and soft. They are of very various histological structure, the causes of which are mostly mechanical.

The smallest fibromata consist of a fibrous connective tissue, comparatively rich in vessels; the larger they are, the brighter pictures do they present.

The connective tissue changes to regular sclerotic bands, or œdematous metamorphosis comes on, through which the fibres and fibre-bundles are pushed apart, so as to contain reticulated spaces, which are filled with granular masses, and are often lined with endothelial cells. Sometimes a system of canals almost regularly covered with endothelial cells extends through the matrix (fibroma canalisatum — Klebs). The causes for these appearances are to be found in great dilatations of the vessels, due to obstruction to the flow of blood and lymph, and which again on their part give rise to hæmorrhages, pigment infiltrations and thromboses, and, lastly, to the formation of these homogeneous, dull-shining hyaline masses, of a light yellow to red-brown colour, often penetrated by small irregular spaces, which are so frequently found in fibromata, especially in the somewhat larger ones. Eppinger regards these hyaline masses as originating in masses of fibrine.

As the rarest metamorphosis, he mentions amyloid degeneration of the connective tissue.

The superficial layer of the fibroma consists, according to him, of

¹ "Pathologische Anatomie der Larynx und der Trachea, aus Klebs' Handbuch der Patholog. Anatomie." Berlin, 1880. Hirschwald.

mucous membrane, distinctly marked off from the underlying fibroma tissue. The epithelium is generally somewhat thickened, and occasionally sends shoots downwards, which, however, never enter into the fibroma.

Eppinger therefore considers, for example, the polypes muqueuses (described by Fauvel²) as a fibroma infiltrated with oedema, and having its fibres separated out thereby. He also doubts the existence of myxoma, as the presence of mucin has nowhere been established. In the same way he believes that the fibroma areolare (T. Müller) is due to the same oedematous infiltration and formation of spaces. Similar to Eppinger's, if not so complete, are the observations of other authors; I therefore give no further quotations, but will just mention that my histological observations agree essentially with those of Eppinger, but that they, as well as clinical observations, force me to a different conclusion.

My work is based upon the examination of thirty-eight polyps of the vocal cords (exclusive of papillomata, tuberculous tumours and carcinomata), which have already been partly made use of (in two works).³

All these growths sat on the true cord near, or actually on, the free border generally between the anterior and middle thirds. All were covered with the same (generally thickened) epithelium as the vocal cord itself, which only seldom sent down deep-reaching roots, but more frequently superficial ones. Immediately under the epithelium lay a thin-fibred connective tissue layer, or at once (and this was very often the case) came the matrix, generally very loose, and full of large spaces.

More seldom the matrix was firmer. But in all cases the matrix contained numerous spaces, partly circular, partly elongated, some with and some without a lining of endothelium; the vessels were often greatly dilated, and fresh hæmorrhages and clots were seldom absent. Lastly the hyaline masses, described by Eppinger and considered by him as derived from fibrine, were often present.

All these appearances must be attributed to congestions, the result of the mechanical irritation to which the polypi are so often exposed. In no single case, however, could I make out a sharp demarcation between the substance mass of the polypi and their coverings.

Remains of glands were found in one case (described already) in a polyp (as a cyst); and further, in a section including a polyp and the vocal cord, I have seen the duct of a gland extend almost into the peduncle.

In this and one other case it was clearly to be seen that both the mucous membrane and the submucous layer, which at the free border of the vocal cords are scarcely to be distinguished from one another, simply bulge out, so that the tissue of the polypi, with the exception of those parts altered by congestion, did not differ from the tissue of the vocal cords. All the constituents of the superficial layers of the vocal cords were present in the polypi, only glands were wanting in all but one case. That, however, is easily explained by the fact that all my polypi were situated

² "Traité Pratique des Maladies du Larynx." Paris. 1877.

³ "Ueber Cystenbildung in Stimmbandpolypen." "Wiener Klin. Woch.," 1897, No. 52.
"Ueber das Vorkommen von Drüsen in Polypen und Knöcheln der Stimmbanden." "Prager Med. Woch.," 1892, No. 4, page 37.

near the free border of the vocal cord, and further generally in the middle third, where there are no glands.

It follows, therefore, that in all my cases, beginning with the singer's node (Sänger Knötchen), which shows itself as a hypertrophy of the mucous membrane and superficial connective tissue, up to the pedunculated so-called fibroma, one had to do with only limited hypertrophies of the superficial layers of the vocal cords. For these, therefore, the name "fibroma" is not to be used, but rather the name "polyp," as Eppinger uses it, when he says: "By this is to be understood only that form of "growth in which one has to deal with a circumscribed hyperplasia of the "mucous membrane, together with the submucous connective tissue, and "in which all the elements of both these tissues take part."

All these circumstances were particularly clearly to be made out in the two cases of polypi of which I made sections together with the cords. I will, therefore, give a more detailed account of them.

These two larynxes were kindly given me by my brother, Prof. H. Chiari, of Prague.

The *post-mortem* examination, held on 23rd May, 1890, in Prague, on a working woman aged sixty showed anæmia essentialis, degeneratio adiposa myocardis, icterus, tumor limis chronicus pneumonia lobularis sinistra, tuberculosis obsoleta apicum pulmonum, and also a pedunculated, spherical polypus, of the size of a hemp seed, on the middle of the right true vocal cord. In the windpipe was tough mucus, but the mucous membrane there, as also in the larynx, was pale. The remaining conditions I omit as of no interest for our present purpose.

This polyp was now imbedded in celloidin, and about eighty sections of it and its vocal cord together prepared: the sections being made in the frontal direction, *i.e.*, perpendicularly from right to left. And first it was observed that the polyp was situated rather above the free border—in other words, just on the upper surface of the vocal cord. Immediately beneath the peduncle there was, clearly to be seen, a firm triangular fibrous mass, the ligamentum cordæ vocalis proprium, into which stretched (but always getting thinner and scarcer) the striped muscle fibres of the musculus vocalis. The peduncle of the polyp (see drawing 6) lies 0.99 millimetres above the free border of the vocal cord and is 0.33 millimetre thick, of which, however, 0.165 millimetre belongs to epithelium, so that the thickness of the fibrous tissue of the peduncle is also only 0.165 millimetre. The greatest thickness of the polyp is 1.54 millimetres, and its length 2.42 millimetres. Its epithelium, a stratified pavement-epithelium with superficial hardening, has a thickness of 0.033 to 0.077 millimetres, and for a short distance near the peduncle lies on a free basement membrane, which is prolonged through the peduncle from the vocal cord. The fibrous portion of the peduncle proves to be a direct continuation of the tissue of the vocal cord, consisting of connective tissue and elastic fibres, and showing a very close structure. This close-set connective tissue remains so only during its course through the circa 0.30 millimetre long peduncle, then at once in the real body of the polyp changes into a delicate tissue containing very numerous, and at parts very large, spaces. The largest of these spaces, somewhat

round, has a diameter of 1·3 millimetres and therefore constitutes the greater mass of the tumour, and it is almost filled with the shining almost homogeneous substance, containing partly spindle-shaped, partly star-shaped, partly quite irregular hollow spaces, which Eppinger has described so exactly. With picrin it stained a beautiful yellow, with carmine scarcely stained at all, and altogether presented the picture of a hyaline mass. Although it did not stain blue by Weigert's method, still I must consider it (as does Eppinger) a derivative of fibrine, but that point will be more fully discussed. At this point I will only call your attention to the fact that beside these masses (which, moreover, did not always show the same reaction to stains), dilated blood-vessels, fresh hæmorrhages or coagula have always been found. Here that was also the case, for, in the tissue of the polypus were found numerous vessels with endothelium, partly empty, partly full of blood, and numerous areolar spaces, also partly containing blood and partly a finely granular matter. Indeed, the largest hollow-space (with a diameter of 0·42 millimetre) lay completely inside the shining homogeneous substance and was filled partly with fresh blood, partly with a large clot, easily recognized by the fibrine network that stained well by Weigert's method. The outermost layer of the polyp consisted, in many parts, of a more evenly formed thin layer of connective tissue, with delicate fibres and containing few connective tissue corpuscles. This was, however, of very varying thickness, and also contained numerous meshes, so that one could not speak of a mucous membrane covering, in Eppinger's sense.

The vocal cord, too, in the immediate neighbourhood of the stalk did not show any sharp demarcation between the superficial and deeper layers, *i.e.*, between mucous membrane and submucous tissue. The whole layer from the epithelium into the musculus vocalis was of the same structure, more compact and firm and richer in elastic fibres in the neighbourhood of the ligamentum cordæ vocalis proprium, but towards the ventricle of Morgagni looser and softer and poorer in elastic fibres, and just on the border between the looser and the more compact parts arose the peduncle. There were no glands either in the polyp itself, in the peduncle or in the vocal cord near the peduncle—a space of three millimetres downwards and one millimetre towards the ventricle being free from glands. Thus all the elements of the polyp were present in the neighbouring part of the vocal cord. The fibrous portion was all over present only in the form of fibrous bands, generally very thin, and at no point was it sharply marked off from the outer layer, so that it certainly was no fibroma. On the other hand, all these conditions are explained if we consider this polypus as a hypertrophy due to great development of vessels and to disturbances of circulation in consequence of frequent mechanical irritations, congestions, hæmorrhages and serous transudations; for all the conditions described in the polyp are quite easily explained by the congestions, which certainly must frequently occur, in such an unfavourably placed piece of hypertrophied tissue as a polypus of the vocal cord.

Finally the condition of the vocal cord is noteworthy. Above the peduncle, *i.e.*, on the upper surface of the vocal cord, towards the ventricle,

the mucous membrane showed several protuberances, in which the superficial layer was rich in round and spindle cells, but in the deep layers there was serous infiltration, so that the connective tissue fibres were often much separated. The vessels were increased both in number and size almost all over the upper layer, but only at single places in the deeper layers: while below the polyp only a very slight increase in the vessels could be made out. Thus in this case there was a chronic inflammation with new growth formation in the neighbourhood of the polyp (several of those that I measured were 0·3 millimètre in diameter), so that the chronic inflammation is at least the probable cause of the polyp-formation, if it cannot be absolutely proved to be so. The inflammation might possibly be explained by the irritation of the polypus, for just the part of the vocal cord lying above the polyp was more irritated than the part lying beneath. The serial sections, however, speak for the former view. In the first sections of the series there was to be seen only a small excrescence of the superficial parts of the vocal cords, with slight thickening of the epithelium and dilated vessels: about 0·7 millimètre high and 0·9 millimètre broad. (Drawing 1.) So they continued through the first ten sections, only slightly and gradually increasing in breadth and height; and their vessels becoming large hollow spaces, which, however, still had their own wall and epithelium: their width was up to 0·6 millimètre. Later (drawings 2 and 3) the excrescence increased in height, but as yet showed no indication of a peduncle, and contained many dilated vessels, in comparison with which the connective tissue became insignificant.

Such was the condition up to section 19. From here on the formation of the peduncle began (drawings 4 and 5), the epithelium from below appearing to snare the basis of the excrescence, so that its diameter shrunk, within a few sections, from one millimètre to 0·2 millimètre. On the other hand, the excrescence increased in height from 1·2 millimètres to 1·9 millimètres, so that it now formed a pear-shaped polypus on a short peduncle. This contained in its interior numerous large irregularly-shaped vessels, each with its own wall (containing elastic fibres), covered with a beautiful layer of epithelium and filled with blood; also similar smaller vessels filled with a delicately granular mass and isolated lymph corpuscles; also large and small areolar spaces in the connective tissue filled partly with blood, partly with clot, partly with a fine granular mass, and partly with the hyaline mass (Eppinger). The connective tissue which was indeed even at the very beginning of the polyp fine and delicate, but still had formed the main body of the protuberance, now retired quite into the background.

At last, from about the 36th section, the polypi appeared as pear-shaped, and later as a spherical tumour, as described at the beginning. And so it remained till about the 60th section, where it appeared separated from the peduncle; the peduncle itself appearing again as a hypertrophic outgrowth of vocal cord, with thickened epithelium, and which rapidly decreased in size.

An examination of these preparations, or drawings from them, leads to a conclusion as to the formation of the peduncle, viz., the impression

made is that one part of the outgrowth, becoming heavy through dilatation of the vessels and through congestions, drags on the peduncle and so brings about a narrowing of it.

Thus then, from the foregoing ; in this case the polypi arose from a hypertrophic longitudinal fold of the vocal cord, which was converted at one part, by blocking of its vessels, into a pear-shaped appendage—the polypus.

Clinical observation also supports this view of the method of origin. For I have often seen, on the border of the vocal cords, very narrow but long (even over half a centimètre long) red folds ; and lately saw one with a small nodular thickening in the centre (drawing 7). This thickening was removed along with the greater part of the fold (with blunt forceps) and examined. It consisted of a somewhat close connective tissue with numerous widened-out vessels and hæmorrhages, and was covered by a stratified pavement epithelium—the same structure as most other small polypi.

Finally, I have often seen, after removal of pedunculated polypi, small red ridges before and behind the peduncle, so that the origin of these polypi out of hypertrophic folds was also clinically clearly proved. The relation between chronic inflammation of the vocal cords and polyp formation was still clearer in the next case.

3. In a drinker forty-six years old, who died of alcoholism, there was found at the *post-mortem*, besides the signs of his alcoholism, a polypus on the left vocal cord. It was situated far forward on the cord, was almost the size of a pea, with a somewhat broad base, dark red, and superficially was apparently slightly ulcerated. The peduncle was broad from before backwards, and narrow from above downwards. Numerous serial sections (about one hundred and thirty) were also made of this polypus in connection with its vocal cord, in the frontal direction : and they presented the following picture.

The polypus was situated not directly on the free border of the vocal cord, but rather beneath it, *i.e.*, beneath the ligamentum cordæ vocalis proprium. But the whole vocal cord, both above and below the polypus, had numerous greatly dilated vessels, both in the superficial and deep layers, and showed besides a rich cell infiltration of the superficial layer of the parts lying above the ligamentum cordæ. The peduncle of the polypus was 0·88 millimètre thick, of which 0·22 millimètre went to the epithelium, leaving 0·66 millimètre for the fibrous portion.

This fibrous peduncle (Fig. n° g) appeared again as a direct prolongation of all the superficial layers of the vocal cord. In it was no demarcation between superficial and deep layers (as mucous membrane and submucous tissue). Its length was about 0·88 millimètre. Naturally these measures were only taken from the frontal sections—its length from before backwards, measured microscopically, extended to nearly one centimètre, so that on the whole it was ribbon-like.

On these frontal sections the polypus itself was pear-shaped, about five millimetres long, and in most sections completely covered by a stratified pavement epithelium of from 0·066 millimètre to 0·16 millimètre thickness. This was wanting only in a few sections on the top of the polypus. The peduncle of the polyp consisted of a connective tissue

of delicate fibres, but compactly arranged, poor in corpuscles, and containing numerous vessels (up to 0.10 millimètre in diameter) full of blood. In the polypus itself, however, were still more numerous and larger spaces filled with blood (some measured 0.77 millimètre, and over, in diameter). These were much more prominent than the connective tissue. Further, in the peduncle, the vessels still had their own walls, whereas the blood-filled spaces in the polypus proper had not, but seemed directly imbedded in the fibrous tissue. Besides these there were also numerous areolar spaces, filled with blood. Endothelium was lacking all over; on the other hand, numerous clots were present in the blood-spaces, and also that glancing homogeneous mass (Eppinger) was present, partly in the blood, partly in the tissues. Still it was not in such great quantities as in the last polypus, and as a rule it stained strongly with carmine.

The connective tissue appeared in the form of tongues and bands, and also as a network—only on the surface were connective tissue corpuscles at all numerous—and pigment patches were present also in the tissue. In most places this cavernous tissue reaches right up to the epithelium, so that here again it is impossible to speak of a mucous membrane covering of the polyp. Almost all the sections presented the same picture, so that in this case also one must consider the polypus as a hypertrophy of the vocal cord very rich in vessels.

In the sections corresponding to the anterior portion of the polypus the mucous membrane, both above and below the place of insertion of the polypus, was found to be raised into several protuberances, with greatly dilated vessels, so that here again one could speak of growth-like hypertrophies of the mucous membrane producing little knobs of exactly the same structure as the small peg-shaped polyp there (two millimètres long, one millimètre broad, measured along with the peduncle). The hypertrophic growths of the mucous membrane were rounded—their basis one millimètre in diameter, and their height half a millimètre). Evidently one of these growths had been developed into the actual polypus, which must therefore be regarded as simply a hypertrophy in which all the superficial parts of the vocal cord had taken part. Indeed, in the first eighteen sections (taken quite near the anterior end of the vocal cord) gland tubules were found right up to the edge of the peduncle. That is not to be wondered at since glands are frequently found there (*pars sesamoidea*—D. Fraenkel). Still neither tubule nor duct did actually enter the polypus, and still less was there to be found in it any cystic dilatation of any part of a gland. Thus in this and the previous case all the superficial layers of the vocal cord took part in the formation of the smaller growths and of the polypi, and there was an accompanying chronic inflammation of the vocal cord. Besides, in almost all cases of polypus of the vocal cords that I have seen, the cords have been in a condition of chronic inflammation, so that after removal of the polypus I have always had to treat the catarrh. Further, it is now known that polypi mostly develop only in consequence of chronic irritation of the cord, although, naturally, not every catarrh causes them. Out of many works that support this view, I will only quote one that has lately appeared. Dr. H. Lavrand, of Lille (*"Sur l'étiologie des polypes*

du Larynx"—"Bulletin et Mémoires de la Société Française d'Otologie, etc.," Vol. IX., 1893, pages 293 to 300), describes seven cases of polyp very exactly, and establishes the fact that either the patients had suffered from catarrh of the cords previously, or that polyp and catarrh existed simultaneously, or that after removal of the polypus the catarrh had still to be treated. These cases, with the special observations on this point, are of great value, especially as catarrh is considered by all authors as at least a favouring and predisposing element.

In all my other cases I could only get the extirpated polypus. These also I examined histologically very carefully. They all showed the same structure as above described, but never a circumscribed fibrous nodule of fibrous tissue covered with mucous membrane. They resembled much more closely the two above described cases, where the sections were made of the polyp along with the vocal cord. I have previously described several of these cases, and of the sixteen new cases three have been dealt with in the foregoing.

4. G. S., male, forty-six years old, hoarse for a long time, showed on the edge of the right vocal cord, in its anterior third, a flat elongated red growth, with a broad base five millimètres in length and two millimètres in height. The whole right vocal cord was deeply reddened and slightly thickened. It (the growth) was removed with forceps in several pieces, stained *in toto* with paraffin, and serial sections made. A thick stratified pavement epithelium covers a delicate-fibred mass with numerous vessels and hollow spaces, hæmorrhages, clots, pigment patches, and granules, and a slight amount of hyaline substance.

5. Polypus of vocal cord in thirty-six sections (sent to me by my brother, Prof. Hans Chiari, of Prague) is of oval form seven millimètres long by four millimètres broad. It was taken from the anterior third of the left vocal cord of a man forty years old. All the sections showed a thick stratified pavement epithelium with a few small roots growing downwards. Thereupon follows sometimes a regular thin-fibred layer, but generally a network of connective tissue, the bands now thick, now thin, and full of spaces. These spaces are filled with blood, and except some lying near the periphery, are without epithelium or definite walls of their own. Hyaline substance (of Eppinger) is again found lying partly in the blood which fills the spaces, partly in the connective tissue, but in this case it stains nearly as bright a red with carmine as either the epithelium or the connective tissue corpuscles. Little clumps and masses of pigment are scattered in many places, especially in the compact connective tissue bands.

In many of the sections the tumour was quite like a carcinoma.

6. Dr. S., fifty years old, for a long time hoarse, showed chronic catarrh of the vocal cords, and on the left at the junction of the middle and anterior thirds a cone-shaped polypus three millimètres long and two millimètres broad, of a red colour and immovable. It was extirpated with crushing forceps, and stained *in toto* with hæmatoxylin. The sections showed a delicate-fibred connective tissue, with many hollow spaces, numerous hæmorrhages, moderately dilated vessels with distinct walls and hyaline substance, the whole surrounded by a stratified epithelium.

7. Herr B., opera singer, consulted me in 1893 on account of hoarseness. I found on the right vocal cord a broad-based polyp, dark red in colour and about the size of a lentil. The tumour after extirpation was found to be completely covered with thick stratified pavement epithelium. Immediately beneath the epithelium begins a fine-fibred, net-like connective tissue layer, containing many vessels and many meshes or spaces, some larger, some smaller, some circular, some elongated, some with and some without a covering of endothelium, and mostly filled with blood. Some, however, contain a finely granular mass. Hyaline substance, well stained by hæmatoxylin, is to be found partly in lumps, partly in stripes, both in the margins of the blood extravasations and in the connective tissue. Pigment is also to be seen here and there.

8. G. M., forty-two years old, male, hoarse for a long time: a grey growth five millimètres long and two to three millimètres broad (therefore of a flat shape) is found just about the middle of the right vocal cord. The polyp is easily extirpated and consists of fine-fibred connective tissue, at parts pretty compact, but, as a rule, loose. It contains much pigment partly in the connective tissue corpuscles, partly in flakes. It is rather strongly vascularized, but shows only few irregular dilated spaces, covered with epithelium and filled partly with blood, partly with a fine granular mass. Hyaline substance, stained with carmine, is found in quantity only at one spot beside a blood extravasation, elsewhere only in small flakes. The epithelium is a stratified epithelium of from 0·06 to 0·15 millimètre thick. From that fact, and from the slight quantity of dilated blood-filled spaces—the grey colour of the polypus is easily explained.

9. Herr T.: a polyp of the vocal cord, red, of the size of a millet seed, seen from serial sections to consist of fine-fibred connective tissue, with many spaces partly filled with clot, in which lies some hyaline substance. In the more compact connective tissue much pigment. Vessels with their own walls are scarce: the epithelium is stratified, and from 0·08 millimètre to 0·1 millimètre thick.

10. Herr F., twenty-eight years old, showed on the left vocal cord, just about the middle of the free border, a broad sessile tumour red in colour, and of the shape and size of half a bean. This apparently was soft, as it could bend both upwards and downwards, in which latter position it was completely hidden by the vocal cord. At certain parts it appeared cherry-red, which indicated hæmorrhages. It was removed with blunt forceps, and appeared macroscopically as a soft fold (or flap), out of which a good deal of blood flowed. In the serial sections it appeared as a tumour, consisting of fine-fibred connective tissue, scattered through which lay long-shaped connective tissue corpuscles often full of pigment granules. At certain spots the connective tissue was compact and had there numerous connective tissue corpuscles and much pigment. Mostly, however, it was loose and moderately filled with blood and a finely granular mass. Vessels numerous only in the peripheral zone, very thin walled, but covered with endothelium.

11. Herr B., thirty-five years old, showed on the edge of the right vocal cord, just about the junction of the middle and anterior thirds, a

reddish cylindrical tumour, with a broad but short stem and about the size of a pea. It was movable and was easily removed *in toto*. The serial sections displayed a fibrous network with many hollow spaces, in which lay blood and a finely granular mass. Hyaline substance abundantly present, stained blue with carmine. Pigment in granules or flakes, thin stratified pavement epithelium.

12. Herr L., forty years old. Hoarse for a long time. Both vocal cords red, the left thickened. On the border of the left, at about the junction of anterior and middle third, was a broad-based double-pointed polyp, about the size of a pea. It was blue-red, in parts dark-red, irregular on its surface, and easily movable, so that it occasionally disappeared under the vocal cord. As the patient was very irritable, the polyp could only be extirpated in pieces, and this was accompanied by comparatively severe hæmorrhage. In the serial sections one saw a stratified pavement epithelium 0·13 millimètre thick and under it connective tissue, apparently greatly swollen, with mostly small meshes which were richly filled with blood or finely granulated clot. Hyaline substance in the form of branching strips or larger masses abundant (it scarcely stained at all with carmine). Pigment scarce.

13. Herr Gio., forty-two years old. A blue-rose-red, almost cylindrical tumour, four millimètres high, three millimètres long, with scarcely any stalk, sits on the edge of the left vocal cord in its anterior third. Easily extirpated *in toto*. The whole left vocal cord was reddened and thickened. Serial sections showed a loose many-meshed connective tissue, thickened here and there towards the periphery and towards the peduncle, and in these places rich in flakes of pigment. Plentiful hæmorrhages, clots and finely granular masses in the connective tissue interspaces. Hyaline masses scarce, and hardly coloured with carmine. Vessels moderately numerous.

14. Herr Georges C. V., twenty-eight years old, hoarse for a year, had a dark-red, broad-based polyp, about the size of a lentil, on the anterior end of the left vocal cord. It was situated near the edge and was easily removed *in toto*; still the accompanying hæmorrhage was pretty strong. Celloidin sections, stained partly in lithium-carmine, partly in alum-carmine and hæmatoxylin, showed a fine-fibred connective tissue with a good many connective tissue corpuscles, numerous vessels, some pigment, and numerous interspaces (specially in the interior) which were filled partly with blood, partly with clot, and partly with hyaline substance. The last stained very strongly with hæmatoxylin, lithium-carmine, alum-carmine, and cochineal-alum. The epithelium is often 0·2 millimètre and more thick, with many layers above of quite flat cells.

15. S. R., thirty years old, male, showed a small, broad-based red tumour, far forward on the border of the right vocal cord, and which scarcely projected at all. This was easily removed, and on section showed itself as a fine-fibred rather compact connective tissue forming large meshes, which were filled partly with blood, partly with clot and partly with hyaline substance. The stratified pavement epithelium was moderately thick.

The foregoing descriptions bring into prominence the great similarity of structure, and I would only mention further that the peripheral layers of the polyp generally differed but little from the deeper parts, and were never sharply demarcated from them, though in many places they were formed of more compact and more regularly arranged fibres. Glands or remains of glands I never found.

I will now describe one more case, a case that was macroscopically diagnosed as a cyst or, more correctly, as a cystic growth.

16. Josef Fedrizzi, forty-nine years old, consulted me on account of hoarseness on February 6th, 1893. I found a growth about the middle third of the right vocal cord; it was pedunculated, coarse and irregular, somewhat translucent, elongated, of the size of a pea, and of grey colour. It was removed in two parts, and appeared on macroscopic examination to consist of connective tissue with many hollow spaces. These emptied out a stringy, sticky, bright fluid. Histological examination of sections stained in hæmatoxylin (drawings 9 and 10) showed the ground-tissue as a fine-fibred connective tissue, with a moderate number of connective tissue corpuscles, which, mostly of a long shape, gave off two or more long processes. In this connective tissue lay numerous larger or smaller hollow spaces without any endothelial lining whatever, and which were kept separate partly by fine fibres, partly by thicker connective tissue bands, but still communicated freely with one another. The spaces were for the most part empty, only here and there filled with a finely dotted mass. Vessels were few; the epithelium was a pavement epithelium several layers thick, with beautiful grooved cells in the middle layers. The fluid contents of the spaces were not examined, as most was lost during the extirpation. There was no trace of glands. Thus the cyst formation here was due to dilatation of the connective tissue interspaces.

In some of the sections the cysts were so large as to constitute the main mass of the tumour. For example, in one section the cyst was five millimetres long by three millimetres broad, so that the whole section consisted only of the epithelium and a thin layer of connective tissue, which sent inwards a few rudimentary septa. We must assume a serous softening of the connective tissue as the cause of the cyst formation since the fluid contents were stringy and sticky. Unfortunately, it was not examined chemically.

The above description corresponds exactly with that of the cyst I described in 1891 (drawing 11)—Ueber Cystenbildung in Stimmband polypen. "*Wiener Klin. Woch.*," 1891, 52 (see also photo No. 12).

Finally, a few words more on hyaline substance.

I have found the hyaline substance described by Eppinger (see drawing 13, as already mentioned, in most of the polypi and had previously described it, in the lecture given to the Society of Naturalists in Halle, August 1st, 1891, when I proved its presence in eleven cases out of one hundred and seventy-seven polypi. At present I will only describe somewhat more particularly some of its staining reactions.

From Weigert's fibrine-stain varying results were obtained; thus in the case of Vallex it stained partly strong red-brown, partly violet, partly blue: in the case of Bäuer mostly blue, in the case of the woman sixty

years old only slightly brownish, and in the case of the man forty-six years old mostly brown.

In this last polyp, however, some parts stained blue, viz., those parts lying just on the borders of the blood-clot. So that one may well describe these hyaline masses as in Eppinger's sense derivatives of fibrine.

The staining with carmine also varied; thus it stained one time a deep red, another time a pale red, and another time scarcely stained at all. In one case it stained an intense yellow with picric acid, while in the same case carmine had no effect.

From my investigations I believe I am justified in drawing the following conclusions.

The growths of the vocal cord, which I have examined, consist only of the same tissues as the vocal cord: the connective tissue is in no case in the form of a nodule marked off from the superficial layers of the tumour: therefore the tumour may not be considered a fibroma, but only a circumscribed hypertrophy of all the superficial layers of the vocal cord—*i.e.*, a polypus in Eppinger's sense.

Their origin in chronic inflammatory thickenings and growths of the vocal cord has been proved both by examination of the serial sections of the two polypi with their vocal cords, and also by clinical observation. The principal cause of growth in the polypus is congestion, which shows partly in dilatation of the vessels, partly in the formation of large connective tissue interspaces, partly in hæmorrhages, and partly in serous exudations. Cavernous blood-spaces, serous infiltrations and hæmorrhages are therefore amongst the most frequent conditions: while connective tissue, on the other, hand is comparatively insignificant. Then we often find Eppinger's hyaline substance, the origin of which out of fibrine is rendered probable by its reactions to stains.

Finally, may I be allowed to remark that probably most other similar growths of the vocal cords will show a similar structure and development, so that we may rightly designate most of them hypertrophies of the vocal cord and not fibromata. In favour of this are their appearance, their position and their whole clinical relations. Naturally, I do not think of denying that fibromata may occur in the larynx, but probably they will be rare.

SOKOŁOWSKI had observed a case of cyst of the larynx pedunculated and situated on the posterior wall of the larynx, where the histological examination showed, beside the typical structure of the cyst, also much firm connective tissue. This condition agrees with Chiari's explanation that cysts can arise from fibromata.

Finally the author lays stress on the importance of Chiari's researches.

VIBRATORY MESSAGE in DISEASE of the UPPER AIR PASSAGES.

By Dr. MICHELE BRAUN (Trieste).

Three years ago I first had the honour of demonstrating, in the International Medical Congress of Berlin, the method of vibratory

massage with probes as a therapeutic means for disease of the upper air passages.

Since that moment several physicians in Germany, France, and Austria have interested themselves in this method of cure, and have published the results obtained ; amongst others two esteemed Italian colleagues, Prof. Massucci and Dr. Felici.

I employ two principal forms of movement in massage of the mucous membrane of the nose, naso-pharynx, pharynx, larynx, and upper part of the trachea ; they are stroking ("sfioramento") and vibration, and the two are combined in such a way that each part of the mucous membrane is thoroughly stroked and massaged.

For this purpose one employs probes of copper, held between the thumb, index and middle finger like a pen, in such a way that the fingers and forearm form a chain which transmits shorter or longer undulatory movements to the mucous membrane under treatment ; these movements are produced by the contraction of the muscles of the arm and forearm, and are transmitted through the curvature of the elbow.

I make use of sounds of three different sizes such as I have the honour here to show you :

The thinnest, No. 1, is used for the nose and Eustachian tube.

The largest size, No. 3, for the naso-pharynx and pharynx.

That of medium size, No. 2, for the larynx and trachea.

The probes are slightly roughened below the olivary termination, in order to fix on more easily some antiseptic cotton-wool, the size of which is adopted according to the cavities under treatment. In addition the cotton-wool should be wrapped round the probe in such a way that it reaches two or three centimètres beyond the olivary extremity without becoming loose, at the same time maintaining a sufficient consistence and elasticity in order to perform the required pressure.

The probe thus prepared is dipped in any solution or ointment which one desires to apply to the mucous membrane. In order to diminish from the beginning the sensitiveness of the mucous surface I employ a solution of ten or twenty per cent. of cocaine, and then an ointment of vaseline with ten per cent. of menthol or balsam of Peru, or a solution of sublimate (one per thousand), or of alcohol, lanoline, or iod-glycerine (ten per cent.).

The duration of the vibration with each single probe depends upon the individual resistance of the patients, and varies from a quarter of a second to a minute. On my study table there are between five and six hundred disinfected probes. For each new vibration, on the same individual, I always make use of a new probe, so that to massage the mucous membrane of the nose, naso-pharynx, pharynx, larynx, and the trachea I make use of about fourteen probes.

Chronic *oxæna*, *strictu rigore*, is treated by me in the following manner : Having removed with every care crusts and mucus, I commence the vibrations of the mucous membrane with a probe, the cotton-wool of which has been dipped in a solution of cocaine of twenty per cent. ; then with another probe, whose tampon has been saturated with one of the above-named solutions, I "vibrate" the floor of the nose ; with a third,

the inferior meatus ; with a fourth, the inferior turbinal ; with a fifth, the middle meatus ; with a sixth, the middle turbinal ; with a seventh, the septum ; with an eighth and ninth, the upper parts of each side of the nose ; and finally with the tenth, the entire cavity. At the same time, I continue the vibration on the naso-pharynx with two or three other sounds. In the afternoon I perform the same process, if, however, the reaction has not been too strong. In no case should one meet with pain or hæmorrhage. Such symptoms show clearly that the probe has not been applied by a skilled hand, or that too much violence has been used, and more harm than benefit is produced.

The utility of this method is as follows : One restricts and localizes the treatment entirely to the diseased part, and one can direct through one's fingers the pressure on the points absolutely necessary ; the facility and rapidity with which one can introduce and remove the flexible and elastic probe on every point of the mucous membrane of the upper air passages enables the patient to tolerate the operation with perfect tranquillity ; the constant and perfect application produce gradually a greater physiological activity of the mucous membranes in their entirety—that is, of the epithelium, of the connective tissue, vessels, nerves, and muscles—so as to renew the entire surface. The diminution of sensibility gives to the mucous surface greater resistance against agents which might act on it harmfully.

I have employed this curative method for the past seven years upon nearly three thousand patients ; in many cases I have obtained a complete cure, and in those in which other methods have not succeeded I have obtained such an improvement that it has almost amounted to a cure. The shortness of time allowed me will not permit of a detailed illustration of these cases ; however, I will summarily refer to a few of the most interesting.

I have cured completely sixty-two cases of ozena. The period of treatment varied from four to two hundred and fifty sittings. Amongst these I would refer to Signora Fragiaco, wife of the cook of the military hospital in Trieste, a case which I had the honour of mentioning at the Berlin Congress in 1890. This patient, who had suffered for twenty years from ozena, with fœtor and formation of crusts, was cured by me after one hundred and thirty sittings in such a way that for five years and up to the present day she has not shown a single symptom of relapse.

Miss M., sent to me two years ago by Prof. Welponer, of Trieste, with ozena accompanied with formation of crusts and a penetrating fœtor, was cured completely in two hundred sittings.

I pass over the hundreds of cases of chronic catarrh of the nose, pharynx, and larynx, with their various symptoms, which I have either cured or controlled in such a way that the persons affected could attend to their business, and I would only mention thirty-five cases of glossodynea, a case of hay-fever, forty-two cases of nasal asthma, and finally seventy-eight cases of neuralgia of the trigeminal nerve, all completely cured. In such cases I only employ massage, if I obtain a complete cessation of every morbid symptom during the attacks, or at least an appreciable amount of relief. I would also mention a case of a young lady who

suffered from a most obstinate typical prosopalgia, rebellious to all usual remedies such as antipyrin, phenacetin, quinine, electricity, etc., and who was completely cured after only four sittings.

In one hundred and three cases of catarrhal affections of the Eustachian tube, I was able to note a remarkable diminution or partial cessation of tinnitus in the ear.

Finally, I would call attention to the following case :—On the 15th April of last year, I was hurriedly called to Mrs. G. C., by Dr. Escher, head surgeon of the civil hospital in Trieste. The patient, aged forty-six, lay in bed with cyanosis, dyspnoea, irregular pulse, incapable of talking or swallowing. From the bystanders I learned that she had frequently suffered from laryngeal catarrh and easily lost her voice after catching cold, and that this sudden attack was ascribed to the same cause. The symptoms went on increasing. Laryngoscopic examination showed œdema of the parts forming the entrance to the larynx of such a degree that respiration was only maintained through a very narrow space, about the circumference of a goose-quill. Intubation or tracheotomy were evidently threatening.

The surgeon present invited me to try massage, which I performed four or five times consecutively ; the result was so favourable that the patient commenced to breathe more easily, the pulse became more regular, and the cyanosis diminished. The same evening I repeated the vibratory massage on the patient (who remained constantly under observation), and at midnight success was decisive ; on the 16th and 17th I continued the same treatment twice a day ; on the 18th and 19th only once ; the patient recovered completely, and every pathological phenomenon disappeared.

I would add the following observations. The *technique* of vibratory massage is decidedly most difficult ; in addition to an extraordinary amount of patience, it demands exact observation, innate and acquired ability, with a disposition of great and natural perseverance ; one cannot obtain success easily ; one must have the faith and firmness necessary to endure the fatigues of the process. When once the first difficulties have been overcome, one will not fail in having the satisfaction of seeing how with this method one can obtain cure or encouraging improvement in a variety of diseases, many of them considered incurable, and rendering existence miserable or insupportable to the sufferers.

I therefore warmly recommend my method to this assembly, not without begging those gentlemen who would like to try it not to let themselves be frightened by the adverse criticism of others, who, through want of patience and perseverance, have not obtained satisfactory results ; and I conclude with the saying, “ *Il successo corona l'opera.* ”

The CHIEF POINTS in the SCIENCE of INTERNAL MESSAGE of MUCOUS MEMBRANES.

Abstract from a Paper by University Docent Dr. CARL LAKER in Graz.

The introduction of internal massage of mucous membranes constitutes an undoubted advance in therapeutics. We know a sufficient number of

carefully-observed cases of chronic disease of the mucous membranes of the upper air passages in which cure, or at least very marked improvement, was produced by internal massage of the mucous membrane, while in the same patients all other previously known methods, carried out persistently and by skilled hands, had proved to be quite useless against the serious and long-persisting symptoms.

Dr. GARNAULT: The capital point of the discussion is to determine if vibratory massage has any action of its own, or if the results produced are due chiefly to the drugs employed. From this point of view my experiments are of capital importance. They resolve the question experimentally, and cannot now be considered doubtful. Freudenthal, indeed, has applied vibrations alone, successfully, for many years, and I myself have found the results to be very superior to those obtained by the local application of drugs, and this is the case both in different patients and in patients treated successively by various methods, and I cannot see why results analogous to the remarkable results obtained by Kellgren upon the skin cannot be obtained upon the mucous membranes. If there have been certain exaggerations on the part of enthusiasts of massage, if certain masseurs apply this difficult method badly, this is not a reason for denying its value; on the contrary, in cases in which it is indicated, bad results should very probably be attributed either to failure of ability or of patience on the part of the physician.

NEW METHOD for VIBRATORY MASSAGE of the NASAL MUCOUS MEMBRANE.

By Dr. IGNAZIO DIONISIO (Turin).

Vibratory massage of the nasal mucous membrane has been fully tried by Braun, Laker, Demme, and others in the treatment of various alterations of the naso-pharynx.

The therapeutic value of this method is still *sub judice*. There are indeed on one side the enthusiasts who employ it in nearly every morbid manifestation, even including syphilitic ulcers and hypertrophied tonsils!—as if it would not be more simple to cure a patient in one sitting with tonsillotomy, than to submit him to forty or fifty sittings of massage. On the other side there are not wanting authorities who do not find in internal vibratory massage any special therapeutic action. The great majority of the profession maintains a prudent reserve and has not yet made use of the new method.

As the ideas from the point of view of therapy have not been accepted *à priori*, we must examine them in order to see (1) if with this treatment we can obtain, more rapidly or less painfully, the cure of those diseases which one treats successfully by ordinary methods; (2) if certain morbid forms, such for example as atrophic rhinitis and ozena, against which we struggle with negative or rare success, can be improved or cured with this new treatment. This treatment was introduced only a short time ago (about three years), and was especially indicated for chronic affections. As these have periods of spontaneous improvement and

relapse, and return after months or years of apparent cure, it will easily be understood that up to the present it has been impossible to form a definite opinion on this method of treatment. My limited experience on the subject forbids me absolutely to touch this point. I will therefore limit myself to describing the *technique* of vibratory therapeutics, mentioning the modifications that I have thought useful for making it simpler or more efficacious.

Internal massage is employed by introducing into the nasal cavities a metal probe with a bulbous extremity covered with a layer of cotton-wool, and then giving to the probe rapid vibrations by means of a series of tetanic contractions of the muscles of the arm.

The number of vibrations given by an expert hand varies from four hundred to eight hundred per minute. By carrying the probe upwards, downwards, to the right and left, one succeeds in exposing every part of the mucous membrane to a series of rapid oscillations. The curative action is the more intense the more rapid and regular are the vibrations. Hence the necessity of frequent exercise in order to succeed in obtaining the greatest possible number of vibrations.

In order to spare the operator the fatigue resulting from these manœuvres the idea occurred to Herzfeld, Lehmann, and Ewer, to construct probes whose extremities could be automatically put in motion by mechanical means or (Freudenthal, Stoerck, Seligmann) by means of electricity. Latterly, Garnault has proposed an electric vibrator by which undulatory movements can be given to the probe in both antero-posterior and lateral directions, *i.e.*, vibrations both transverse and axial. Their frequency is much greater than can be furnished by the hand, and reaches up to two thousand a minute. Both in the vibrations produced by hand and in those by the apparatus referred to, the tract of mucous membrane exposed to the vibrations corresponds to the dimension of the extremity of the probe covered with cotton wool; that is, one can never operate but on a circumscribed point of mucous membrane, having a maximum size of one centimètre square. Given the superficies of the nasal mucous membrane, which can be approximately calculated at forty centimètres square, and given the duration of ordinary sittings of massage, which (depending on the toleration of the patient and the fatigue of the operator) cannot exceed five minutes for each nasal cavity, it is evident that in this brief period we have to submit to vibratory massage a superficies of forty centimètres square, acting at a time on a surface of only one centimètre square. The number of vibrations produced by the hand being about four hundred per minute, gives two thousand in five minutes; one will then have fifty vibrations for each surface of mucous membrane, corresponding to one centimètre square. Employing the mechanical means, with which one obtains two thousand vibrations per minute, we will have two hundred and fifty vibrations on every centimètre square. As, however, in the vibrations the probe can act not only on one point, but on two situated opposite one another, one can increase the vibrations indicated, and calculate that in massage by the hand one arrives at one hundred vibrations for every centimètre square of superficies and in mechanical massage at five hundred.

Bearing in mind the principle admitted by all who have up to the present occupied themselves with the question, viz., that the therapeutic action of massage is the more powerful the more frequent and regular are the vibrations, I turned my attention to finding a method of acting with the vibratory treatment, not only on isolated points of the mucous membrane, but over all or nearly all its extension. With the apparatus which I will describe later on one can have up to four hundred vibrations per minute, not on limited zones of mucous membrane, but upon nearly all its extension, so as in a period of five minutes to reach nearly twenty thousand oscillations. This figure is forty times more than that obtained with other apparatus, and two hundred times more than that obtained with manual vibrations. The apparatus is composed of one part destined to transmit the vibrations, and of another part which generates them. The first consists of an india-rubber bag, which is introduced into the nasal cavity and blown up with air so as to come in contact with nearly all the points of the mucous membrane except the meatus (if the turbinals are hypertrophied), and the parts ordinarily inaccessible to the probe. This bag is identical with that which I proposed and adopted some years ago for the purpose of dislodging the crusts in ozæna and maintaining antiseptic pomades for a length of time in contact with the mucous membrane. It communicates by a tube with a generator of the vibrations. This latter consists of a chamber of air, in which one obtains by means of a piston rapid increase and intermission of pressure. A suitable arrangement allows one to give to the pistons rapid movements of two hundred to four thousand oscillations per minute, and to diminish or increase the size of the vibrations at pleasure. The generator of the vibrations can communicate, if one wishes it, with various india-rubber bags. In this way one can submit to the vibratory action not only one but both nasal cavities, and even three or four patients at a time. The sensation experienced by patients is that of a tremor, which in the larger vibrations extends to the whole of the head, and is not unpleasant or painful, as in massage with probes.

The summary of the advantages of this method are :—

1st. The greater number and the quality of the vibrations acting on the mucous membrane, being homogeneous and not simply shocks.

2nd. The ease of the application, being better tolerated, and sparing the operator the disagreeableness of remaining in contact for hours with patients, inhaling their unpleasant breath.

3rd. The economy of time and fatigue in being able to submit two or three patients to the treatment at the same time.

Dr. M. SCHMIDT thought that the greater number of the communications were in favour of the efficacy of this method, but it was inconvenient to carry out with the arm. Redner had brought an electro-motive vibratory apparatus with him, which was being exhibited by Emil Braunschweig of Frankfort. By it the amplitude of the vibrations could be regulated.

Dr. MASSUCCI : I have experimented with vibratory massage with good results, though in some cases only with improvement ; as I have

already published, in laryngeal paralysis I have had eight cases of perfect cure without relapse.

I have also had many other cases of the same sort, but not always with cure. In cases of pharyngitis, laryngitis, and rhinitis chronica I have always succeeded with few exceptions; and I believe that in the cases in which success is not obtained failure depends on the fact that either the operator is easily fatigued or is not sufficiently practised in it. I believe, if a perfectly electrical apparatus could be substituted for the hand, that massage would certainly give still better results. In ozæna and laryngeal tuberculosis I have employed it in a limited number of cases, but I cannot say I have had favourable results.

Dr. CHIARI said he had never seen any better results from this treatment than from ordinary painting of the throat.

Dr. BRAUN: My reply to Prof. Chiari's remarks is already in the Vienna medical papers. His objection that an acute inflammation of the throat heals without the use of vibratory massage is not sound, because by massage the duration of the disease is shortened. Further I do not intend to discuss the value of vibratory massage here. Its results depend entirely upon the dexterity and endurance of the operator, as is the case in all endo-laryngeal and intra-nasal operations. In order, however, that the medical gentlemen present may form an independent opinion on the subject, I will demonstrate the treatment on patients in Prof. Egidi's clinic.

Dr. CHIARI (personally): I must expressly remark that Prof. Wölfler stated, at the time, that this case could not prove the value of vibratory massage. From my own experience I hold that vibratory massage is of no more use than painting.

Dr. LAKER: Massage can never render operative procedure superfluous, still there always will remain plenty of simple cases in which we may be able to bring about healing by massage alone. With regard to the above mentioned case, shown to the Verein der Aerzte in Steiermark, the fact must be emphasized that the patient had experienced a healing of his severe reflex neuroses before ever any operation had been carried out—i.e., therefore simply from massage of the mucous membrane.

DEMONSTRATION OF THE PRAXINOSCOPE.

By Prof. F. MASSEI (*President of the Section*).

THE adaptation of this very pretty modification of the zoetrope, or wheel of life, to the purposes of laryngological instruction was made the subject of an interesting demonstration. The movements of the vocal cords in the normal condition, and when interfered with by various forms or paralysis, were most graphically displayed.

**DEMONSTRATION of a number of CASTS of different DISEASES
of the LARYNX.**

By Dr. PAUL BERLINER (Berlin).

Dr. Berliner demonstrated a large collection of plastic wax preparations, representing various diseases of the larynx. They showed various stages of the pathological changes in larynx and trachea in the course of tuberculosis and syphilis. These models are very accurate and surprisingly true to nature, and form an exceedingly instructive aid to medical teaching.

**ELEVENTH INTERNATIONAL MEDICAL CONGRESS
IN ROME.**

SECTION OF OTOLOGY.

LIST OF OFFICERS:

President—Professor EMILIO DE ROSSI.

Honorary Presidents—Drs. COLLADON, GELLÉ, MOOS, and POLITZER.

Secretaries—

Drs. FERRERI and AVOLEDO (Responsible), DUNDAS GRANT, LUDEWIG,
GARNAULT, and SARTORI.

March 30th, 1894.

PRESIDENT'S INAUGURAL ADDRESS.

By Prof. DE ROSSI.

The bonds which unite together the cultivators of medicine in general are especially firm in the case of those who confine themselves to the same field and have identical aspirations. You ought to consider yourselves as brothers, members of the same family, spread over the surface of the globe, who have come to-day to foster the progress of this young branch of science, otology, which has received the greatest consideration from both scientific and practical men, and which aims at higher and grander conquests, such as humanity expects of us with perfect confidence. In the land of Eustachius, of Valsalva, and of Corti, and in the name of our Italian colleagues, I offer you a fraternal greeting.

**A REMARKABLE CASE OF OTITIC LATERAL SINUS
THROMBOSIS.****Death from Pyosepticæmia after Trephining of the Mastoid Process.**

By Prof. MOOS (Heidelberg).

The patient was a lawyer, aged fifty-four, and given to drinking. The father and two of the family died of tuberculosis. He came under treatment on the 26th of September, 1890. He declares, as far as he can remember, that he has never been seriously ill with the exception of a discharge from his left ear dating from his earliest childhood, and for which he had never had any medical assistance. The ear disease got worse about the 17th of September, and on this day he took a walk in a wood without his coat, in his shirt-sleeves, and in very hot weather. He thinks that he caught cold on this occasion, for after it he felt unwell, but had no shivering or feverishness. After three days he, for the first time from the beginning of the ear disease, felt pains in and behind the left ear, which persisted, but not very severely and not continuously, without headache, without noises in the ear, without giddiness or faintness, with somewhat diminished appetite, and without constipation. On examination the left mastoid process was diffusely reddened, very slightly swollen, with little tenderness on pressure or percussion, with small granulations on the middle of the posterior wall of the osseous meatus, the drumhead being totally absent, the mucous membrane of the wall of the labyrinth appearing thickened and reddish-grey after the removal of the covering of pus by means of a syringe which caused an outflow through the Eustachian tube. As regards the acuteness of hearing, speech was understood at a quarter of a metre, but also when both ears were stopped, the watch and acoumeter being unheard either by air or bone conduction. On testing with tuning-forks of eight octaves, the patient heard on the left side only g^5 , and by bone conduction only C, 128 vibrations. The temperature was normal, the pulse 108.

On the 27th of September, at nine o'clock in the morning, the mastoid process was chiselled open, and appeared sclerotic. In it there was no trace of pus. In the antrum there were cheesy masses which flowed freely out of the external meatus on syringing. Part of the injected fluid ran out through the Eustachian tube. Iodoform gauze dressing was applied, and two sutures. In the afternoon at half-past four his temperature was 38.5° . Sleep was almost uninterrupted since the operation. In the evening at nine o'clock his temperature was 38° . Then on the 28th, in the morning, temperature 38° , pulse 84, after a very good, somewhat broken night. On the 29th, morning, temperature 38.4° , and pulse 90. Dressings changed; removal of the stitches. Very few masses removed on syringing. In the evening at half-past seven and at half-past nine temperature always 37.9° . In the night of the 29th to the 30th of September there were severe pains in the region of the left tragus. On the 30th the morning temperature was 37.5° . An abscess pointed in the region of the tragus and discharged itself spontaneously.

He was then free from pain and quite comfortable. In the afternoon at half-past four his temperature was $37^{\circ}1'$, and at half-past nine at night $36^{\circ}5'$. In the morning of the 1st of October at eight his temperature was $37^{\circ}2'$, his pulse 90; he vomited his breakfast; there was a free discharge of pus from the tragus abscess. On syringing after the removal of the dressings there was considerable outflow through the tube. The edges of the wound broke open again at the site of the sutures. Iodoform gauze dressing was applied. In the afternoon at three and in the evening at half-past seven his temperature was $38^{\circ}5'$, pulse 100, and he was very thirsty.

He had quite excellent sleep in the night from the 1st to the 2nd of October, but in the morning of the 2nd he felt very much depressed, with loss of appetite, his temperature was $38^{\circ}8'$ and his pulse 120. The wound was sloughy. Iodoform dressing was applied. Up till five in the evening his condition was the same, his temperature $39^{\circ}5'$, his pulse 104. In the evening at half-past nine his temperature was $38^{\circ}5'$. He slept well the next night. On the morning of the 3rd at eight his temperature was $37^{\circ}8'$, his pulse 108. The wound and dressing as before. At half-past ten his temperature was $38^{\circ}8'$, his tongue was loaded, complete loss of appetite, constipation (repeated bitter water had no effect), copious deposit of albumen in the urine (up to the time of death), extreme prostration; champagne was ordered. At six in the evening his temperature was $37^{\circ}8'$, his pulse 120, his respirations 54. Over the whole of the lung, especially at the upper two-thirds, were numerous fine and coarse *râles*, but more fine crepitations with a tympanitic resonance in the region of the upper two-thirds, the resonance in the lower third being clear. After enemas there was copious motion. He was ordered *ipecacuanha*.

On the 4th of October, at eight in the morning, after a fairly quiet night, his temperature was $39^{\circ}9'$, pulse 144, respirations 48. The condition of the lungs was the same as on the previous day. He was somnolent and could scarcely be roused, otherwise he continued the same. In the afternoon at four his temperature was $38^{\circ}5'$, he was quite unconscious and muttered meaningless words. The champagne was continued as before. From four o'clock onwards his abdomen began to swell, death took place at half-past ten in the evening, and soon afterwards there appeared petechiæ on the hands.

Post-mortem examination by Prof. Ernst. — Thrombotic masses were found in the transverse and semicircular sinuses as far as the jugular foramen. In the inferior petrosal sinus there was a clot commencing to soften. The thrombi had a dirty brownish appearance. There was hæmorrhagic fibrinous pachy-meningitis (with thin discoloured layers of fibrine) in the posterior cranial fossa lying upon the posterior wall of the petrous bone. The superior petrosal sinus was for a little distance from its orifice into the transverse one impervious and filled with a thrombus, but after that it was completely distended, and continued so in its course over the petrous bone. The blood in it could not be squeezed out into the transverse sinus. There was old opacity and thickening of the pia mater on the convex part of the hemispheres, with numerous pacchionian granulations. The brain was anæmic. Numerous adhesions existed

between the dura mater and skull on the one hand, and the dura and pia matres on the other. There was atheroma of the aorta and coronary arteries, and old pleurisy, with adhesions on both sides, those on the left being more extensive, with obliteration of the entire pleural cavity. There were numerous round and wedge-shaped purulent pneumonic patches, on the left side chiefly on the periphery, in the right lung a considerable number also in the interior of the organ. There was granular atrophy of the liver, and parenchymatous nephritis. The internal organs were much decomposed with the development of vesicles. The stomach was much distended; there was a considerable amount of fat on the body, and the spleen was enlarged.

The Examination of the Temporal Bone.—About the middle of the posterior wall of the osseous meatus there were several small circumscribed carious spots covered with granulations. The antrum was free from caseous masses; its lining membrane was thick and of a bluish-red colour. The mucous membrane of the wall of the labyrinth was in a similar condition. The membrana tympani and the two first ossicles were absent. The tympanic orifice of the Eustachian tube was very wide. There was nowhere any appearance of caries such as would give rise to sinus thrombosis. The labyrinth was not examined.

The case described is interesting from several aspects:—

First: The rapid onset of the fever eight hours after the opening of the mastoid antrum, whereas previous to that it had been absent.

Second: The peculiar course of the fever, almost entirely different from the fever caused by infection from sinus thrombosis. There was no chilliness or rigor, and the maximum deviation of the temperature never went beyond 2° R., while on the day of death it was only a degree and a half.

Third: The contrast between the relatively slight fever and the great extent of the secondary affections in the lungs and kidneys.

Fourth: The absence of communicating caries between the local and intra-cranial affection.

Fifth: The rapid fatal course.

Sixth: The occurrence of a metastatic abscess in the region of the tragus.

With regard to diagnosis, an intra-cranial lesion was recognized. It was thought it might be a miliary tuberculosis. This appeared to receive confirmation from the tuberculous hereditary tendency. The rapid occurrence of the lung affection, as also the albuminuria, and the complete absence of pyæmic fever in the clinical evidences. The rapid occurrence of the fever after the operation gives, in consideration of the absence of communicating caries on *post-mortem* examination, reason for asking whether the chiselling open of the mastoid process, which was rendered difficult by the sclerosis, did not give rise to the subsequent lateral sinus thrombosis, and, therefore, under these circumstances and in such affections the danger of operative interference by means of a chisel in certain conditions becomes greater, in a similar fashion to what Sahli in his statement "On Surgical Operations from the point of view of Internal Medicine" has pointed out as dangerous to the brain. The drink-

ing habits of the patient probably predisposed to the occurrence of the pyæmia after the operation, and to the exceptional rapidity of its course.

In future, in order to avoid diagnostic mistakes in similar cases, the bacteriological examination of the blood, or of the discharges, or both, would be advisable. In regard to the occurrence of bacteria in the blood of pyæmic patients, Birch-Hirschfeld¹ already proved it in 1873. More certain evidence of pus-cocci in such cases has recently been given by Garré,² Von Eiselsberg,³ and Koranyi-Ferray.⁴

We possess already pretty numerous observations of the presence of cocci in the discharges from cases of pyæmia in the urine,⁵ in the sweat,⁶ in the conjunctival secretion,⁷ in the synovia of joints,⁸ as also in the milk of patients with puerperal septicæmia.⁹

A CASE OF ABSCESS OF THE BRAIN CONSECUTIVE TO A MEDIAN SUPPURATIVE OTITIS.

By Dr. E. J. MOURE (Bordeaux).

My object is not to record here the comparative frequency with which cerebral complications occur consecutively to suppurations of the ear—these are facts well known to-day, and about which everything seems to have been said or written. If we are to go by the classical accounts this assertion is true, but how often is our diagnosis hesitating? how many times is the hand of the surgeon arrested by the absence of indications, not only as to the point he would select to open, but also as to the opportunity for surgical intervention? It is because every error and every difficult case has its lesson that I have desired to record the following interesting case, especially because the patient presented few symptoms, and because of the rapid progress of the disease at a period when all seemed to be going favourably.

I was called during the month of August last into a department in the neighbourhood of the Gironde, to a patient fifty years of age, who for forty days had been suffering from a discharge from the left ear. His physician told me that two months before Monsieur X. had at the end of a cold been attacked with very severe pains in the left ear, which had ceased eight days after suppuration had appeared. This relief had lasted

¹ "Medic. Centralbl.," 1873, No. 39.

² "Fortschritte der Medicin," 1888, S. 166.

³ "Wien. Med. Wochenschr.," 1886, D. 135.

⁴ "Wien. Med. Presse," 1890, No. 37.

⁵ Philippovitch, "Wien. Med. Blätter," 1885, No. 21 u. 23. Trambusti e Maffucci Rivista Internaz. di Medica e Chirurgia, 1886, 9 u. 10. Tizzoni—Contribuzione alle vie d'eliminazione dall' organismo della Staphylococco, pyogeneo aureo—"Rif. Med. di Bologna," 1891, Mai. (Vergl. Baumgarten's bact. Jahresberichte.)

⁶ Brunner, "Berl. Klin. Wochenschr.," 1891, No. 21. Von Eiselsberg, ebenda, No. 23. Tizzoni, *loc. cit.*

⁷ Passet, "Fortschr. d. Med.," 1890, No. 2.

⁸ Ehrlich—Ueber das Methylenblau u. s. w.—"Zeitschr. f. Klin. Med.," 1881.

⁹ Karlinski—Zur Aetiology der Puerperalinfektion der Neugeborenen—"Wien. Med. Zeitschr.," 1893, No. 23. Hochsinger—Ueber pyäm. sept. Inf. Neugeborener—"Allg. Wien. Med. Zeitung," 1888. Escherich, "Fortschr. d. Med.," 1890. Longard, "Arbeiten des Pathol. Instit. zu München," 1890, Bd. 2.

a few days when the pains reappeared, intense, lancinating, recurring in attacks and occupying all the left side, without special localization. These painful symptoms were of such intensity that the patient could scarcely rest. Believing them to be a return of the old neuralgia excited by the undoubted inflammation of the tympanum, quinine, antipyrin and all the usual drugs employed in such cases were administered to the patient.

Locally irrigations were applied to the ear with a small glass syringe and insufflations, and an insufflation of iodoform in powder. Far from being relieved, the pains persisted, always intense, and occurring in crises, which lasted several hours, especially during the night, keeping the patient awake, who began to get anxious about his condition.

In order to calm him it was necessary to give him morphine injections, which produced temporary relief.

The ear discharged continuously and abundantly, and there was a buzzing like the noise of a sea-shell. There were no general reactionary symptoms, no fever existed, no vomiting, no mental disturbance, appetite was good, when intermission of the pains permitted the patient to eat.

His physician added that for some days suppuration had notably diminished; the pain persisted, but seemed to be less severe for two days. The patient was better; but he had profound sweats without any known cause, which alarmed his medical attendant.

On my arrival I found him seated in his chair, and he answered all my questions very clearly, and assured me that for twenty-four hours he had experienced very marked amelioration of the painful symptoms of which he had complained up to that day.

Those about the patient insisted on his former nervousness, and the existence of facial and fugitive neuralgia, with which he had formerly suffered. I found the pulse on examination to be good and regular, and the skin normal, and no fever present. Functional examination of the ear gave the following results—

Hearing for speech—right ear, fairly good; left ear, somewhat defective. Hearing for watch tick—right ear, good; left ear, at five centimètres. Tuning-fork on the vertex heard best in the left ear. Rinne's test in the left ear was negative.

There was no swelling around the ear. The mastoid apophysis appeared to be normal; it was sonorous to percussion, painless on pressure. The left side of the cranium was more sensitive, but the patient had more apprehension than actual pain when this region was touched, having already suffered so much.

On direct examination of the ear I found the meatus filled with epidermic pellicles and powder of iodoform, as far as the tympanum. After removal of all these foreign bodies, I perceived the drum perforated below and in front, and pus flowed out easily during Valsalvan inflation. Nevertheless, I enlarged the perforation, and used washes of corrosive sublimate, and a mastoid vesicatory. Internally, he had quinine and antipyrin.

Not finding any alarming symptom present, I directed the patient to go out if the weather was fine, and I agreed with my *compère* in explaining

the pains as being due to neuralgia occasioned by the aural inflammation and maintained by the accumulation in the tympanum and in the meatus of epidemic masses which impeded the free flow of pus. The symptoms being amended for two days, I hoped that progressive amelioration would end in cure in a short time. Unhappily this optimistic prognosis was not destined to be fulfilled, for in the night which followed my visit the patient was seized all at once with an epileptiform convulsive crisis and succumbed in a few minutes, with all the signs of cerebral, or rather, ventricular exudation. I was soon informed of this sad result, and reviewing the case in my mind later on, I did not hesitate to refer the patient's death to the rupture of an abscess in the brain, developed during his otitis. This was indeed the course of an exactly similar case which I had observed during the preceding year in a hospital patient, who during his life had presented no symptoms except intense pain. The evening of her death she had come on foot to my consultation room, about 500 metres from the room she occupied. She had had to ascend and descend two flights of steps, and, like the patient of whom I have just spoken, she died suddenly during the night. Autopsy had discovered the existence of a vast abscess of the cerebrum and cerebellum, having destroyed almost the entire portion of one half of the latter.

I believe that it would have been difficult in these cases to affirm the existence of a purulent collection in the brain, and especially to recognize its exact situation. Nevertheless, in the presence of a patient with acute suppuration of the ear, in whom the flow of pus is not free, I consider that the existence of pains of the head, persistent and occupying the same point, lancinating pains, producing crises to the point of hindering sleep, is a most important indication which we cannot pass over. It is necessary in these cases, if revulsive and medical treatment has not been followed by appreciable relief, not to hesitate to open the mastoid apophysis largely and at once. This operation permitting the complete irrigation of the tympanum will suffice to check cerebral complications, and in any case it will be easy to penetrate into the brain through the mastoid opening and to make certain that there does not exist any purulent collection round the tympanum. If this practice does not succeed it is at least a comparatively harmless intervention, which would not prevent ulterior trephining at another spot if the diagnosis of a collection of pus could be established. It is certain that this tardy intervention would probably have saved my patient, for he had suffered for forty days, and applied at the proper moment it is scarcely doubtful that it would have changed the course of the disorder.

Prof. POLITZER confirmed the observation of Dr. Moure, by similar cases which he had observed in his clinic, and believed that in these cases there was a rupture of the abscess on to the surface of the brain, producing an acute meningitis and sudden death. He knew that Prof. de Rossi had also observed cases with rupture of the abscess into the cerebral ventricles.

Prof. E. DE ROSSI said the case of Dr. Moure is very interesting. As to the cause of death I cannot entirely agree with Prof. Politzer, who thinks that it was due to a meningitis which developed in a few hours. I

have had one case in my clinic in which autopsy demonstrated that the sudden death was due to the opening of an abscess into the fourth ventricle.

Dr. GRAZZI: Whenever, during the course of the disease, the patient presented no absolute symptom suggesting the existence of a cerebral complication of the otitis, he believed that the autopsy, if it had been performed, would have been able to reveal the true cause of the disease, which, indeed, might be found out to be cerebral hæmorrhage.

Dr. MOURE (Bordeaux) considered Prof. Grazzi's opinion was not borne out by practice. He thought the lancinating pains, the profuse sweatings occurring forty-eight hours before, and finally what was known of the frequency of cerebral abscess in suppurative otitis were sufficient for the diagnosis of cerebral abscess in his patient. He saw no reason for suggesting the possibility of its being a case of cerebral hæmorrhage.

Prof. MOOS has observed, after trepanation of the mastoid abscess, a double abscess in the cerebral hemisphere of the same side. Although both abscesses were successfully operated upon, death supervened. The older of the two abscesses was probably caused by backward flow, for there was an old thrombosis of the lateral sinus.

Dr. GELLÉ recalled the case of a man aged thirty-five, affected with suppurative otitis for four weeks, and who died suddenly after being received into the Hôpital Lariboisière. There was found an enormous cerebral abscess without any communication with the tympanum. The patient had come to the hospital on foot, and had a broken-down "typhoid" appearance. Dr. Gellé remarked on the insidiousness of the onset—the absence of symptoms suggestive of such a serious complication as a cerebral abscess. In addition to the aural suppuration, there was a painful fulness along the vascular cord in the neck, but none in the mastoid region. The lateral sinus was obliterated for the length of eight centimètres by old plastic material. There was in this case a recent infectious exacerbation on the top of old otitic lesions.

Prof. COZZOLINO recounted some cases of cerebral diseases consequent on otitis and of an apoplectic form observed by him. Amongst those the most interesting are the two following:

The first is that of an officer, a sub-lieutenant, who fell to the ground and lost consciousness whilst on guard, suffering from chronic suppurative otitis media and its complications—granulations of the tympanic mucous membrane, etc.

The other case is much more interesting on account of the great celebrity of the patient. The celebrated archæologist Schliemann consulted Dr. Cozzolino on the 23rd December, 1890, at the latter's consulting rooms in Naples, on account of a serious suppuration from the left ear. Prof. Schliemann did not tell Dr. Cozzolino who he was and where he was staying, an old habit of his, although Dr. Cozzolino pressed him to give his address since he wished him to remain in his hotel and consider himself seriously ill from otorrhœa. On the 24th December, at eight o'clock, Schliemann was found lying on the ground half paralyzed, and with paralysis of the tongue, in a street in Naples, at some distance from Dr. Cozzolino's house. He was picked up by an inspector of police and conveyed to the Grand Hotel, where he was recognized. Dr.

Cozzolino followed Schliemann to the hotel, and finding out who he was, immediately summoned Profs. Schrön, Cardarelli, D'Antona and D'Urso in consultation. All agreed that the cranium should be trephined in order to free the brain of pus ; but unfortunately the discussion was cut short by Prof. Schrön, who announced that Schliemann had expired.

Dr. CAMILLO POLI: The author had the opportunity of observing in the Clinica Medica of Genoa two cases with cerebral complications resulting from chronic ear affections followed by *post-mortems*, of which he had preserved specimens. Both the cases were in young individuals, in whom, however, the symptoms presented were completely different, in the sense that while in one the local symptoms were prominent, in the other the local symptoms were so little manifest that they passed unobserved before the larger picture of a grave pyæmia. In the first case dissection revealed, in addition to the symptoms of otitis media, a cerebral abscess in the middle lobe opening into the lateral ventricle, and consequent meningitis; in the second case one had to do with a thrombosis of the lateral sinus with diffused metastatic abscesses. The author agrees with Gellé that, in the cases in which local symptoms are but little manifest, this is owing to the fact that the individuals present themselves in such a state of prostration that they are not able to call the attention of the medical man to their ear troubles.

THE OPERATIVE TREATMENT OF CHOLESTEATOMA.

By Dr. REINHARDT (Duisburg am Rhein).

At the Tenth International Medical Congress, Wegener (Hanover) described Schwartz's operation for cholesteatoma of the petrous bone. Its object is to prevent recurrence by establishing a permanent opening behind the ear, by ingrafting skin flaps from the skin of the head.

At the same Congress Stacke (Erfurt) described his method of opening into the middle ear, viz., by taking away the pars ossea of the atticus ; by removal of the lateral wall of the aditus this is opened, and by a broad resection of the posterior wall of the external meatus the antrum is exposed.

Since this proposal was made three and a half years have gone, during which time the method recommended by Stacke has been sufficiently tried, and has proved thoroughly satisfactory. By it all dips and hollows are freely exposed to view.

Now the question arises whether cases of cholesteatoma of the ear, for which Stacke's operation has been used (and for which indeed it is specially to be recommended), ought further to be treated by Schwartz's method, viz., by the broad persistent opening, or whether the opening remaining in the posterior wall of the external meatus is sufficient to prevent relapse.

In sixty cases in which the antrum was opened Reinhardt found cholesteatoma nineteen times, and of these he treated fifteen with the persistent retro-auricular opening. In those cases in which the operation

wound behind the ear closed up again, a new formation and disintegration of skin set in, so that the life of the patient was again in danger, whereas in those with the post-auricular opening (some of them watched during three years) this danger never arose.

Reinhardt's method of operation is as follows : first he opens into the antrum by Schwartze's method, then loosens the membranous portion of the meatus, above and behind, with a raspatorium, then cuts it across at right angles as near the membrane as possible. Great care must be taken not to injure the anterior and inferior parts of the membranous portion of the meatus, as in the after treatment it is important to have as large an area as possible of intact epidermis.

The wall of the meatus after being thus loosened is cut through at right angles, and the flaps fixed above and below, after carefully stopping all bleeding.

Now Reinhardt has two bony canals before him, which converge—(1) the bony meatus ; (2) the artificial bony canal. The bridge of bone remaining between these two (*i.e.*, the posterior bony wall of the external meatus) is now removed in scales from without inwards, during which the facialis lying deeply in must be protected by a bent silver-sound, introduced through the meatus into the antrum. From the superior wall enough must also be removed to bring freely into view the atticus and the aditus.

Any remains of malleus, incus, and membrane, as also all the cholesteatomatous masses from all holes and corners, can now be freely removed from the petrous bone thus laid open. One single cavity is now formed out of the meatus, the tympanum, the aditus, the antrum, and the mastoid cells.

Now the important point is to keep this cavity open permanently by a broad opening from the anterior as well as the lateral wall of the processus. This is accomplished—

- (1) By the introduction of flaps of skin from the skin of the head.
- (2) By transplantation from animals in suitable cases.
- (3) By taking flaps from the posterior surface of the concha.

By this last method (which Reinhardt made use of whenever he knew definitely, before the commencement of the operation, that cholesteatoma was present) the growth of hairs into the cavity is prevented.

In the treatment of so dangerous a disease as this cosmetic results cannot be considered.

Dr. LEMKE asked in how many cases a definitive cure had taken place. In most cases cholesteatoma was associated with caries, sometimes of tuberculous nature. This makes it absolutely indispensable to keep the retro-auricular opening from closing.

Dr. REINHARDT replied that out of nineteen cases fifteen had a persistent opening and in them there was no recurrence. When increased skin formation took place it was easily removed by the patient. In the others, fresh growth of skin and purulent degeneration took place and renewed otorrhœa with all its dangers. Caries is present in most cases of cholesteatoma and in one it was proved to be tubercular.

Prof. POLITZER considered Dr. Reinhardt's operation an improve-

ment on Stacke's, because the latter made the invasion of epidermis easier than before. The maintenance of a persistent opening behind the ear did not, however, always offer a certain guarantee against recurrence of cholesteatoma, because on account of the anfractuous character of the cavities of the middle ear it did not prevent the formation of a cholesteatoma in a cavity beyond the reach of the eye.

Dr. DUNDAS GRANT referred to the difficulty there was in judging of the extent of a cholesteatoma. It might be very limited. He looked upon it as a desquamative dermatitis, and when after the most successful operation the cavity was completely lined with epidermis it only required moisture or microbic invasion to rouse the epidermis into active inflammation. It was therefore impossible to guarantee the patient absolutely against recurrence. By the avoidance of moisture and the use of local antiseptics good results were to be obtained, but on the occurrence of symptoms of erosion of bone operative interference was called for.

ON THE AURICULAR AFFECTIONS OF HEREDITARY SYPHILIS.

By Dr. G. GRADENIGO,

Professor of Oto-Rhinology in the University of Turin.

In hereditary syphilis, in addition to the well-known form of complete bilateral deafness, one meets another less marked form of progressive deafness presenting the characters of chronic catarrhal otitis media, with rapid diffusion to the labyrinth. This morbid form is analogous to that which one meets with in individuals predisposed by heredity to diseases of the ear, and in individuals belonging to families in which tuberculosis is hereditary.

In this less severe form of progressive deafness from hereditary syphilis the characteristic symptoms are as a rule little marked; amongst these the most frequent is interstitial carotitis. Sometimes the distinctive symptoms are completely wanting, and the diagnosis is settled with security only by the existence of the characteristic feebleness of the children, the existence of specific infections in the parents, or the well-known signs of hereditary syphilis in the patient's brothers or sisters. In certain cases one cannot establish the specific pathological cause of the affection, except upon a base of probability, from considering the malignancy shown by the morbid process in the middle ear and the grave participation of the internal ear, especially when one can exclude with certainty other general infections. Heredity in disease of the ear is often associated in such forms with hereditary syphilitic infections. The less severe form described above of progressive deafness is found chiefly in the female sex, as is the more severe form. But it differs from this latter, which usually appears at the age of puberty, in appearing as a rule much later in life, generally between twenty and thirty years of age.

Catarrhal lesions of various grades in the nose and naso-pharynx are found as direct exciting causes of the mischief. The treatment of

these lesions, although always useful, does not, however, give such brilliant results as in the genuine otitis media. A mixed specific treatment produces no worthy improvement in a certain number of cases.

The author reserves for a later work a detailed exposition of the clinical characters of the form of the disease.

Prof. MOOS (Heidelberg) asked Prof. Gradenigo several questions on the examination, prognosis, and treatment of hereditary syphilitic affections of the ear.

Dr. GELLÉ (Paris) insisted on the existence of suppurative affections dependent on hereditary syphilis and presenting the ordinary appearance of otorrhœa. Granulations, osteo-periostitis, caries, etc., required the same treatment as ordinary otorrhœa with the addition of specific medication. Such cases sometimes are met with in elderly persons; they resist ordinary treatment but readily yield to a specific course.

Dr. GIUSEPPE FICANO (Palermo) wished to know from Prof. Gradenigo if there were differential local characters between the sole progressive deafness of hereditary syphilis and that of true otitis media, since he did not see the possibility of making a diagnosis between these two maladies.

Dr. AVOLEDO asked what lesions were met with in the labyrinth in consequence of lesions of the ear of syphilitic origin.

Prof. GRADENIGO, in reply, said that his communication was especially clinical. At the same time he remarked that cases of osteo-sclerosis of the temporal bone of a nature probably specific had been noted by Habermann, and that probably the new form of auricular affection which Prof. Politzer was going to describe in this Congress from the anatomopathological point of view would be found to correspond to that described by the author.

Dr. GRAZZI (Florence) said that in general one is too ready to admit the syphilitic nature of ear affections met with during the course of morbid manifestations of hereditary syphilis. In many cases one has to do, not with syphilitic manifestations of the Eustachian tube or of the tympanic cavity, but ordinary catarrhal otitis referable to causes sometimes unconnected with syphilis, and this is the reason why the specific course will cure the morbid manifestations of the syphilis while exercising no influence on the auricular troubles, which are only cured by the local treatment required for catarrhal otitis media.

Prof. V. COZZOLINO (Naples) remarked that syphilis as a cause of chronic affections of the middle ear, both exudative and hyperplastic, had been admitted by Itard, Triquet, etc. He believes that in such cases an accurate rhino-pharyngeal examination, rather than an examination of the appearance and function of the ear, can solve this diagnostic question. According to Dr. Cozzolino the cavity of the naso-pharynx and the nose are the direct routes for the diffusion of secondary syphilis along the Eustachian tube to the middle ear; and that this is more marked in the secondary than in the tertiary form.

Dr. ADOLPH BRONNER (England) held that in all cases the interstitial keratitis preceded the disease of the ear. The prognosis of ear disease accompanied by keratitis was most unfavourable. In most cases the

middle ear became affected, with or without suppuration, and the inflammation spread to the internal ear.

"ABSCESS OF FIXATION" IN OTOTOLOGY.

By Dr. HENRI COLLADON.

1. Abscess of fixation is a proceeding of Nature by which inflammation with a tendency to suppuration of an organ seated deeply is derived to the periphery (terebinthine abscess). From whence follows the cure of the primary affection.

2. The auditory organ participates in the benefits of this process.

3. Acute median suppurative otitis may be terminated spontaneously by the formation of a diffuse external otitis, the cure of which at the end of three to four days is followed immediately by the cessation of the otorrhœa and the cicatrization of the perforation.

4. External otitis "of fixation" may be artificially induced by the injection and instillation into the ear of drugs, amongst which the irritant antiseptics, and especially thymic acid, appear to occupy the first rank.

5. Medication by fixation is efficacious beyond everything in acute median suppurative otitis, and notably in subacute otitis. It deserves to be made the subject of experiment, however, in chronic suppurative median otitis free from complications.

Dr. SZENES (Buda-Pest) referred to a second series of observations of cases in which the occurrence of external otitis had led to the cure of suppuration in the middle ear. In these cases the median otitis resisted all treatment until the external inflammation appeared.

Furuncle of the external occurs as a complication of influenzal otitis, but has no relation to the external otitis referred to.

Dr. GRADENIGO had observed the complication very seldom in influenza. He suggested that the complication might be due to a too irritating form of treatment.

Prof. COZZOLINO recommended the use of microcidine as an alkaline antiseptic which was not irritating. He looked on external otitis as a regrettable complication.

Prof. DE ROSSI considered the external inflammation as totally independent of the median, and as in no way beneficial. He explained the beneficial action of blisters behind the ears by the increased phagocytosis resulting from the inflammation.

Dr. FLATAU (Berlin) compared this to the complication of suppuration of the nasal sinus with external abscess.

Dr. LUDEWIG (Hamburg) recommended as treatment for external otitis circumscripta subcutaneous injections of carbolic acid (three per cent.) in front of or behind the ear—not into the furuncle.

Dr. COLLADON distinguished the affection described from furuncle as quite independent of microbes. The irritant employed must be antiseptic.

**ON THE PATHOLOGY OF VERTIGO OR ATTACKS OF
AURICULAR ORIGIN (Ménière's Type).**

By Dr. GUISEPPE GRADENIGO,

Professor of Oto-Rhinology in the University of Turin.

One ought to distinguish two principal forms of vertigo or attacks from auricular causes : the first or spurious form in which lesions of the middle ear cause co-lateral or reflex irritation in the ampullæ of the semicircular canals ; the second or typical form associated with primary lesions of the semicircular apparatus.

With regard to the typical form, contrary to the hypothesis of Ménière, and to the opinions accepted on the subject up to the present, especially in clinical medicine, it is only in exceptional cases that a picture of symptoms analogous to that of Ménière's disease is brought about by hæmorrhage in the internal ear. If these hæmorrhages, indeed, are so abundant as to produce rapidly the destruction of the ampullary apparatus, symptoms of vertigo may be altogether absent ; if they are less abundant, so as to produce rather a reactive irritation, the attacks of vertigo are severe and continuous (not in accesses) and with gradual diminution.

The typical picture, then, of Ménière's vertigo is only a phase in the diffusion to a labyrinth of a chronic catarrhal affection of the middle ear. If the diffusion is very slow the symptoms of reaction on the part of the ampullary apparatus may be nearly or completely absent ; if the diffusion is less slow the symptoms at a given period of the morbid process, when the affection gains the said apparatus, present a typical picture of attacks of vertigo with exacerbations. Finally, if the diffusion is rapid the symptoms may be so severe as to produce a state of continuous vertigo. The duration of the phase of Ménière in the clinical course of a chronic catarrhal affection of the ear depends upon the rapidity with which it develops and varies, from a few months to one or more years ; everything which hastens the progress of the disease abbreviates also the phase of exacerbations of the attacks of vertigo, because to the period of irritation of the ampullary apparatus succeeds that of abolition of function.

Ménière's vertigo, then, may be met with in the most varied affections of the middle ear when they extend to the labyrinth, especially in the forms of otitis produced by trade occupation, by syphilis and by tuberculosis, acquired or hereditary. It therefore only constitutes one phase of a morbid process, and its causes may then be various, and the symptom therefore does not deserve to be regarded as a separate form of disease.

Prof. Moos agreed with Prof. Gradenigo's distinctions in Ménière's vertigo as regards irritative and paralytic phenomena, as well as with his explanation. He had himself published this opinion in 1891 in his monograph on epidemic cerebro-spinal meningitis.

*March 31st, 1894.***PATHOLOGICAL COMMUNICATIONS.**

By Prof. KIRCHNER (Würzburg).

(A) Complete Necrosis of the Mastoid.

Necrosis in the region of the temporal bone is not a very rare affection, and hence we often find in severe suppurative processes that sometimes large, sometimes small pieces of bone in this neighbourhood or its surroundings become loose and have to be removed by means of operative procedures. In many cases it is not difficult to determine the presence of a sequestrum, because the clinical appearances, as well as the nature of the suppuration, give considerable indications. In other cases, however, these appearances may be altogether wanting, and one is surprised, even when the duration of the suppurative process in the region of the middle ear is comparatively short, to find already an extensive sequestrum.

In the case now before us in which a very large and, from several points of view, interesting sequestrum was present, there occurred in a child of five years of age, at the end of a severe attack of diphtheria of the pharynx, a suppurative inflammation of the middle ear which lasted several months. While the suppuration in the tympanum and the purulent discharge gradually got less, spontaneously there came on a perforation in the mastoid process, and the fistula remained unchanged with very considerable secretion of pus from it. When I first saw the patient I determined upon submitting the mastoid process to operative treatment, and it was done at once. When the deeper parts were exposed in the ordinary well-known way I was struck with the mobility of the whole mastoid process, and of a part of the squamous portion of the temporal bone. After careful investigation and probing I was able to remove out of the enlarged wound an extensive sequestrum, which consisted of the whole of the mastoid process and a large piece of the squamous bone. There was no appearance, either during the operation or the after-treatment, of any severe bleeding, such as from the internal appearance of this sequestrum one would have expected to take place from the transverse sinus.

On the sequestrum it is easy to demonstrate how the cellular spaces of the mastoid process can be distinguished, as well as a part of the posterior superior wall of the osseous meatus, and further there can be seen on the inner surface of the preparation a groove about twenty-five millimètres in length, with smooth walls, the sigmoid fossa which corresponds to the course of the transverse sinus. A fistulous opening at the base of the mastoid process leads into the antrum, and at the posterior part the mastoid fissure can be seen quite distinctly preserved. Healing took place without any disturbance, and there was no paralysis of the facial nerve. Within a week after the operation the purulent discharge from the tympanum ceased entirely, and the slight hyperæmia

of the membrane disappeared, while the normal grey colour and the natural brilliance of the drumhead became gradually perceptible; even the hearing power returned almost to the normal in the second week after the operation, inasmuch as soft whispering speech could be heard at the distance of seven steps with the affected ear.

It is particularly remarkable in this case how the isolated inflammatory process in the mastoid with extensive necrosis had been unaccompanied by any severe affection of the tympanic structures, so that no perforation of the drum remained, and the hearing power returned nearly to the normal after this severe degree of inflammation, whereas we are accustomed in such cases to have the suppuration continuing for years, with a large permanent defect in the membrana tympani and distinct diminution of the hearing power.

(11) *A Case of Necrosis of the Cochlea.*

This interesting preparation, to which I will shortly refer, is from a female patient who for a number of years had suffered from purulent middle-ear inflammation. After a severe attack of giddiness and intense headache, which lasted for a few days, there came away during the syringing of the ear a sequestrum of some size. As can be seen by examining the preparation, we have before us complete necrotic elimination of the whole of the cochlea. Such cases have already been repeatedly observed, and have given rise to active discussions as to the perception of sound in the region of the labyrinthine parts. The following was the result of the examination of the hearing in this case. With regard to the evidences derived from tests by means of the speaking voice and other sources of sound by air conduction several times repeated, they give no results of any value, because it was impossible to exclude the share taken by the other sound ear. I shall therefore merely refer to the results derived from tuning-fork tests. The sound of a tuning-fork vigorously struck and placed upon the mastoid process of the temporal bone from which the cochlea had come away, whether of low or of high pitch, was heard without the slightest doubt in this ear. After a little time, as the intensity of the sound became less it was observed that the perception passed over the forehead to the other ear, where the hearing was good. When the tuning-fork was only feebly struck and placed upon the mastoid process of the ear in which the cochlea was wanting, the tone was from the very first heard only in the opposite unaffected ear. From the middle line of the upper or lower jaw, when the tuning-fork was placed upon the incisor tooth the sound was heard only in the normal ear. On the other hand, if we moved the tuning-fork towards the "cochlealess" side and placed it upon the canine or molar teeth of this side, the sound was distinctly heard in this defective ear and no longer in the normal one of the opposite side. The patient, when these tests were applied, was already sixteen years of age, perfectly intelligent, and there could be no question of any deception.

With regard to the explanation of the observations just described one might suppose that perhaps a small residuum of the terminal apparatus of the auditory nerve remained intact, sufficient to account for the little

remains of hearing power of which evidence was present. On the other hand, perhaps the amount of perception of hearing which remained took place through the stem of the auditory nerve through the stump left behind the cochlea, or lastly, that a certain amount of perception of sound was possible through the nervous apparatus in the vestibule and the ampullæ.

Dr. DE ROSSI asked Dr. KIRCHNER if he had tested the hearing by clinical methods. In a very old case (twenty years ago) the hearing for serial vibrations appeared to be preserved in spite of the complete loss of the cochlea. This was the case of a young girl, fourteen years of age. We stopped the healthy ear with wax and softened gutta-percha, and in spite of that the patient heard the whispered voice from one end to the other of a large room; we then made a hole in a door which communicated with another room and passed through it a caoutchouc tube, and spoke in the funnel attached to one extremity of the tube, while the other extremity was introduced into the auditory passage of the affected ear, the girl being in the room adjoining the one in which we spoke. Then only did we find that hearing was completely abolished, and that the patient could only hear by the healthy ear through the bones of the cranium.

Prof. GRADENIGO recalled another theory besides the three given by Dr. KIRCHNER in explanation of the lateralization of the sound of the tuning-fork on the vertex in the ear from which the cochlea had been eliminated by necrosis. This was the theory put forth by Bezold, who looked upon it as an effect of the "resonance" of the loud tone of the tuning-fork in the altered cavity of the organ of hearing. He himself believed that in the case of feeble sounds, such as those of the watch or the osteo-tympanic acoumeter, this resonance would not make itself heard, and the results would very easily be quite the reverse of those obtained by means of the tuning-fork.

APPARATUS for the GYMNASTICS of the DRUM and OSSICLES.

By Prof. W. KIRCHNER (Würzburg).

Rarefaction of the air in the external meatus in cases of anomalies of tension of the membrana tympani and of diminished mobility of the chain of ossicles is well known to produce very excellent results in many cases, not only with regard to the diminution of subjective noises, but also the improvement of the hearing. For some time we have had to make use for this purpose of simple or complicated apparatus procurable only from the instrument makers. For several years I have made use of an india-rubber tube, forty-five centimètres in length, furnished with a tip to fit into the ear and an olive-shaped mouthpiece, for the practice of rarefaction of the air in the external meatus and to bring about rhythmical movements of the drum. In the middle of the tube there is a globe of strong glass, about a centimetre and a half in diameter, in the cavity of which is a mass of cotton-wool to serve as a filter, which can be renewed from time to time. In this way we prevent during the suction the passage of dust

and other materials out of the ear into the mouth. Over the tip of the ear is a little gauze covering, by which the apparatus can be fastened airtight into the meatus without causing pain. This simple apparatus, by means of which the same effect can be produced as with Siegel's speculum or Delstanche's rarefacteur, recommended itself to me particularly on account of its cheapness in the case of poor patients in the polyclinic. I have frequently instructed them in its use, and have handed it over to them frequently for self-treatment in suitable cases, just as we occasionally entrust them with the carrying out of Politzer's method of inflation. It is possible to attach to a small Siegel's speculum, in the same way as in this apparatus, an india-rubber tube provided with a glass ball and cotton filter. The Siegel's speculum thus slightly modified can very simply be made use of, by means of suction with the mouth, for the observation of the movements of the drum, as also for the treatment of anomalies of tension.

Dr. L. GANDERER : In connection with the demonstration of the apparatus for rarefying air for the purpose of exercising the drum-membrane, may I be allowed to remark that hyperæmia may sometimes be caused by strong aspiration (*i.e.* strong rarefaction of the air). Now this apparatus is to be handed over to the patient for his own use : in this case, however, we cannot regulate the strength of the aspiration, and thus the patient may, by making too strong use of the apparatus, bring about hyperæmia, or even hæmorrhages.

In dispensary practice we have chiefly to do with the less intelligent public : the patient will, perhaps, believe that the more frequently he makes these aspirations and the stronger they are, the better ; and so he will probably injure himself. Therefore I believe that we cannot, in every case, hand over this apparatus to the patient for his own use, but should do so with great care and only after giving sufficient instruction on the method of using it.

Prof. KIRCHNER remarked with regard to the condition found by tuning-fork tests in case of necrosis of the cochlea, that in this case he attached no importance to tests by air-conduction, *e.g.* by speech and by various musical instruments, on account of the difficulty, if not impossibility, of excluding the other ear.

With regard to the fear that one should not hand over the aspiration apparatus to the patient to be used by himself, in case ill effects be produced thereby, the pressure caused by the suction is not strong. The speaker has for a number of years made use of this method, with good results, for removing "noises in the ear" (this being often followed by improvement in hearing), and he has never seen bad consequences. The patient is instructed to stop the treatment whenever pains in the ear come on, or the noises increase.

Hæmorrhages occur more frequently in using Delstanche's rarefacteur, because of the stronger pressure produced. Further, the pressure can be much more easily regulated by suction with the mouth.

THE OSSEOUS CASING of the FACIAL and its LESIONS.

By Dr. GELLÉ (Paris).

After reading his work, Dr. Gellé arrived at the following conclusions:—

1. The cavity of the tympanum and the mastoid cavities are incompletely separated above, totally below, in the inferior two-thirds, by a thick, compact, bony lamina, which forms the posterior wall of the internal auditory meatus, and at the same time that of the tympanic cavity, in such a manner that, while able to be filled simultaneously, these cavities can empty only singly and independently of each other.

2. Considering the pathogenic importance of this osseous septum, the author characterizes it in a specific manner by its most salient anatomical relationship, and designates it "*the osseous casing of the facial.*"

3. The Fallopian canal crosses this channel from above downwards, and from within outwards; being situated at first in front of it, it afterwards becomes posterior to it, below. We may, therefore, consider (1) an intra-tympanic portion; (2) a tympanic portion, at the point where its direction crosses the tympanic border obliquely; (3) an extra-tympanic mastoid portion, which turns round the posterior wall of the auditory canal external to the tympanic ring.

It is, from a pathological point of view, always auricular in these three portions.

4. The point of intersection of the canal with the posterior border of the tympanic ring answers to the large horizontal diameter of the tympanic membrane passing by the umbo. At this level the facial is found to be situated sometimes only two millimètres from the surface of the auditory canal, often three, and rarely four millimètres, in the adult.

5. In its extra-tympanic course the Fallopian canal hugs the posterior wall of the meatus, which it goes round in order to become inferior. The extent in which it is in contact does not exceed five millimètres—that is to say, that five millimètres from the inferior pole of the tympanic ring the canal ceases to be in relation with the wall of the meatus. In this space the facial passes at a depth of two to four millimètres or more from its surface.

6. The thickness of the osseous lamina, which forms the posterior walls of the meatus and of the tympanum at the same time, is very unequal; often the air cells are level with the meatus. These points of least resistance appear more numerous and more frequent near to the tympanic ring. On the mastoid aspect the compact osseous lamina is bare over an extensive surface, and the Fallopian canal is seen projecting from this side in the midst of large cells communicating with the enlarged antrum.

These anatomical varieties explain the complications, the formation of mastoid fistulæ opening into the meatus, etc.

7. A section made in the plane perpendicular to the temporal surface of the cranium at the level of the meatal orifice and directed towards the posterior border of the tympanic ring falls on the Fallopian canal,

which it cuts, and on the posterior wall of the tympanum. It opens the mastoid hiatus, leaving the antrum behind and the attic in front. [Preparation shown.]

Thus I establish an imaginary line, a useful landmark for the limitation of the otic cavities to which we wish to gain access.¹

8. On opening the cavity of the auditory meatus or its superior posterior wall three millimètres behind this imaginary line of section, we arrive directly upon the mastoid antrum without touching the facial. This is a very important landmark.

9. Opening the meatus in front of this imaginary line, at a height of four to five millimètres above the tympanic ring, we expose the wall of the cavity of the ossicles, and open the attic.

10. The extreme limit of the mastoid antrum is six to eight millimètres behind the imaginary line, and there we come upon the lateral sinus.

11. The opening of the antrum can only be sufficient and useful when this is made through the mastoid apophysis, the osseous channel of the facial constituting a firm septum between the tympanum and meatus and the antrum.

To strictly satisfy the indications in intra-mastoid abscess complicating suppurative otitis, it would therefore be necessary to open the mastoid cells, then the posterior and superior wall of the meatus to within five millimètres of the tympanic ring, and then to pass above the level of this ring, and behind the imaginary line indicated for opening the antrum.

12. Opening the attic is facilitated by this notion of an imaginary line, in front of which the superior wall of the meatus ought to be removed to the extent of five millimètres at most, starting from the tympanic ring. This operation never opens the antrum sufficiently; the superior border of the osseous "casing" is always raised above the tympanic ring, sometimes as much as four to five millimètres. Hence the idea of combining in one single operation opening of the antrum of the attic and of the mastoid cells.

13. From a pathogenic point of view, we know that by the presence of this osseous septum, incomplete above, the tympanum and the mastoid cells and the antrum, fatally combined in a pathological relationship (infection, decubitus), are almost absolutely separated in the application of topical remedies (irrigations, drainage, disinfection, etc.).

The meatus only drains the cavity of the tympanum. The obstacle is the osseous casing of the facial, unapproachable in its tympanic portion. Hence the necessity of creating a special artificial outlet to empty and treat the otic cavities placed behind it. Hence retentions of pus, caries, osseous fistulæ, sequestra of this channel, and interminable otorrhœas, grave complications, facial paralysis, facial neuralgias.

14. Facial paralysis may complicate intra-mastoid suppuration without apparent lesion either in the meatus or the posterior wall of the tympanum (lesion of the extra-tympanic part of the Fallopian canal).

15. The facial may be affected in lesions of the osseous channel (caries, fungosities, necroses) in its tympanic course, and in the region of the tympanic ring.

¹ For these landmarks, read the work *in extenso*. "Annales des Maladies de l'Oreille." Jan., 1894.

16. Facial paralysis may be seen in otorrhœa due to osseous lesions of the bottom of the meatus outside the tympanum, for mastoid fistulæ of the posterior wall of the meatus, always more or less near the tympanic ring, are very frequent. Polypi inserted upon, or issuing from fistulous tracks situated at the same point—that is, outside the tympanum—associated or not with facial paralysis, are not less common.

Their ablation may be complicated by the appearance of facial paralysis, or amend it rapidly if it exist previously.

A revolver shot could wound the facial in this course, hearing being preserved, and the apparatus of transmission intact, even with the tympanum perforated.

17. The presence of the facial in this otic region paralyzes the efforts of surgery; the gravity of the lesions and complications (pyæmia, enormous sequestra) may be such that it is necessary to sacrifice this nerve to fulfil the principal indication (Chapu's operation).

18. In otorrhœa with sequestrum situated in this spot, it is of importance, before intervening *manu armatâ*, to await the mobilization and separation of the necrosed part, be it arrived at, by spontaneous elimination, under the risk for the operator of taking the responsibility of accidents as disagreeable as paralysis of the face or indelible deformity of the features.

19. In the operation of curetting the osseous surfaces, fungating and carious, it is prudent to treat with great gentleness of hand the various points of this osseous casing, which is most often affected in otorrhœa, either in its intra-tympanic or in its extra-tympanic portion so near the facial.

20. In traumatism of the cranium, the consequences of falls, with otorrhagia, facial paralysis, etc., the lesion may be limited to bruising of the Fallopian canal, with compression of the nerve from hæmorrhage; hearing then reappears as soon as the meatus is disembarrassed, and the movements of the face are restored after the resolution of the effusion.

Dr. GRAZZI (Florence) found the communication of Dr. Gellé most important from the point of view of practice, because in general when the paralysis of the facial is complicated by or is the result of neoplasms growing in the depths of the meatus auditorius, or in the middle ear, by removal of the neoplasms the paralysis is either cured or improved. On the contrary, in the case referred to by Dr. Gellé in the beginning of his communication, the paralysis occurred after the removal of a polypus growing in the bottom of the auditory meatus. He (Dr. Gellé) had correctly ascertained by means of anatomical observation the cause of this fact, so strange at first view, and practitioners should be grateful to him for the conclusions at which he had arrived, and all should bear in mind the case when operating in the auditory meatus or the tympanic cavity.

Dr. GELLÉ remarked that it has happened to him, in exploring the meatus with a probe, to penetrate the fistulous tract, and to observe muscular spasms and grimaces of the face of the corresponding side produced. There are therefore a certain number of cases in which the

Fallopian canal courses along the posterior superior wall of the meatus three millimètres from the tympanic ring.

ON A PRIMARY AFFECTION OF THE LABYRINTHINE CAPSULE.

Anatomical Studies on a New Form of Disease of the Ear, with a Demonstration.

By Prof. ADAM POLITZER (Vienna).

The matter which forms the subject of this communication deals with a rare affection of the auditory organ, which, presenting the symptoms of chronic dry catarrh of the middle ear, has not up to the present had drawn to it the attention of the medical world.

From the examination at the general hospital for the aged at Vienna of a large number of individuals affected with pronounced deafness, the observer has had occasion to determine in a precise manner the nature of this form of affection, characterized especially by progressively increasing hardness of hearing and of the auditory function, and the author has been able to confirm his observations by *post-mortem* examinations of persons seen by him during life. It is upon these observations that he has arrived at the conclusion that there was present with an affection of the mucous membrane of the middle ear, a primary disease of the osseous part of the labyrinthine capsule, which results in a proliferation and enormous development of the same. This disease of the osseous part is oftenest developed in the portions of the labyrinthine capsule which surround the fenestra ovalis, and produces almost always ankylosis of the stapes by the proliferative action of new tissue introduced into the fenestra ovalis. In microscopic sections this new-formed osseous tissue which encroaches greatly upon the normal parts has all the characters of recent osseous formation, with bone spaces greatly enlarged, and with numerous newly-formed blood-vessels. The osseous proliferation involves not only a thickening and an enormous increase of the labyrinthine wall, but it extends equally above the fenestra ovalis and the base of the stapes, which is joined by ankylosis with the labyrinthine capsule itself.

The author then exhibited under magnifying glasses a series of preparations from individuals affected with deafness in a high degree whom he had observed during life in the general hospital for the aged of Vienna—preparations in which could be followed the osseous proliferation of the labyrinthine capsule in the different stages of its invasion of the stapes. In the cases of deafness of a lesser degree the newly-formed osseous mass had caused the disappearance of the annular ligament which bound the base of the stapes to the fenestra ovalis, and had also produced a partial ankylosis.

In other preparations the whole base of the stapes had been completely absorbed by the newly-formed osseous mass, thickened by many times its diameter, and formed an osseous mass which closed completely the fenestra ovalis.

In another series of preparations the osseous mass was seen to issue

from the labyrinthine capsule and penetrate not only into the base of the stapes, but also into the triangular space formed by the two branches of the stapes, so that the base of the stapes seen from without was completely covered by proliferations of newly-formed osseous tissue.

In cases of still higher degree of deafness the stapes appeared to be transformed into a triangular bone, which closed the fenestra ovalis and the niche.

Prof. Politzer demonstrated, amongst others, a preparation in which almost all the labyrinthine capsule appeared transformed in this manner. The osseous proliferation extended even in the direction of the cochlea, and completely filled the scala tympani with new-formed osseous material.

As to the etiology of the affection, there does not appear to be anything definite, except that it occurs for the greater part in very aged individuals. In two cases the patients suffered from gouty manifestations. It has not been possible to establish the syphilitic origin of the affection. From the researches of Moos it would, however, appear indisputable that in chronic syphilis local lesions may develop in the walls of the tympanic cavities.

The author then reviewed the therapeutics of the disorder, and expressed the opinion, from the results of examination of the anatomical specimens, that this disorder of the ear must be considered to be incurable.

Latterly it has been proposed, indeed, in cases of dry catarrh of the middle ear to extract the stapes as a means of amelioration of hearing. But it is scarcely possible that this operation, even if performed immediately when the first symptoms of the affection were recognized, and while the stapes was yet movable, could lead to any useful result, since, as is shown by the pathological sections, the newly-formed bone in the labyrinthine capsule tends to constantly advance in the direction of the fenestra ovalis, from which we may conclude that even after extraction of the stapes the fenestra would still be ultimately closed by ossification.

When once ankylosis has occurred, extraction is impossible, because the immovable branches of the base of this ossicle tend to break away from the body of the bone under traction.

However, when affections of this nature, which are characterized by their insidious progressive march, are still at their commencement, the author is able to recommend in all cases, as a curative internal means, the intermittent use of fairly strong doses of iodide of potassium, but the value of this treatment itself has need of demonstration by further observations and practical experiments yet to be made.

Prof. MOOS had seen a case in point thirty years ago. It commenced after erysipelas with violent and always increasing subjective noises, decrease of hearing power till speech could only be heard through a speaking-tube.

Post-mortem examination: Hyperostosis of skull, hyperostosis of petrous bone, narrowing of all openings in petrous bone, narrowing of fenestra rotunda. Ankylosis of the stapes, with a bending up of the plate. Diameter of the scalæ of the cochlea more than one millimetre thick. Narrowing of the bony semicircular canals, with atrophy of the membranous semicircular canals. No alteration in the nerves.

Dr. COLLADON thanked Prof. Politzer, in the name of the section, for his interesting communication, which is a new conquest in the field of otology, and adds another gem to his crown. It is probable that if statistics of the etiology of this osseous lesion could have been rigorously compiled, it would have been found that the arthritic diathesis was the primary cause of these lesions, analogous to the lesions it causes in other parts of the body. Treatment by iodine is evidently best suited to this affection, combined with attention to dietetics and hygiene.

Dr. MADEUF asked Prof. Politzer if the osseous formations, which he has discovered in the ear, are not to be found in any other part of the osseous system.

Prof. POLITZER replied that the new formations (after very thorough examination) were found to be localized in the position he had described.

DEMONSTRATION of MICROSCOPIC PREPARATIONS of the MIDDLE EAR and LABYRINTH.

The preparations demonstrated by Prof. Moos are taken from the two petrous bones of a girl eleven years old, who died three years after the onset of complete post-scarlatinal deafness. Final affection — purulent meningitis of the base and of the convexities.

First series: Extension inwards of epidermis into the middle ear, covering over the whole wall of the labyrinth right up to the canal for the nervus facialis. Formation of small cholesteatomata.

Second series: Healed necrosis of the wall of the labyrinth, and of the bony portion of the canalis facialis.

Third series: Disease of various semicircular canals, both of the bony (healed necrosis) and of the membranous portions. New formation of connective tissue, of vessels and of osseous tissue in the region of the endo- and peri-lymphatic spaces.

Fourth series: New formation of bone in the scala tympani of the right and in both scales of the left cochlea. Purulent inflammation (consequent on the extension of the final meningitis) in the highly ossified portion, as also in the porus acusticus internus, with destruction of the acusticus and facialis (nervus). Extension of the suppuration to the modiolus of the apical spiral. Extension of the necrosis of the osseous porus acusticus internus, right to the periosteum of the wall of the labyrinth, which thus partially destroys again the new-formed bony substance in the scala tympani.

The THERAPEUTIC VALUE of EUROPHEN, ALUMNOL, DIAPHTERIN, and ANTISEPTIN, in SUPPURATION of the EAR.

By Dr. S. SZENES (Budapest).

The author referred to the many new methods of treatment yearly brought forward in surgery, and pointed out the necessity of bringing

forward new methods of treatment in therapeutics as well as in surgery. He thought it advisable that every new antiseptic should be carefully tried, as we require the maximum of cleanliness with the minimum toxic effect. Suppuration of the ear is very common, and we naturally seek for new agents in our desire to obtain the best result, but we are not unfrequently disappointed. The above-named antiseptics have been described and generally recommended.

Dr. Szenes tried these drugs in eighty-six patients after having tried various other remedies. He did not attempt to describe the medical or other properties of the drugs. He stated that after thoroughly cleansing he applied them to the ear in the form of powder, and noted whether they had any influence upon the secretion of pus or not. The author described his method of treatment as drying first and then administering the powder.

Diaphtherin he had tried in eighteen cases, and all the patients complained more or less of a burning sensation in the ear. This feeling lasted for about five minutes. There was also in two cases irritation of the corresponding eye. The author was not very favourably impressed with this agent.

Antiseptin was tried on sixteen patients, and despite its strong recommendation as an antiseptic in tubercle and syphilis he had also an unfavourable report to give about it.

If europen is insufflated into the ear it gives rise to no pleasant sensation, and is not dissolved in the pus, so that if suppuration was profuse, I found next day the external ear full of pus. There was no powder to be seen, but on syringing the ear the water brought away both pus and the powder that had been insufflated the day before. If the secretion was slight, I found, on simple examination with the mirror, the powder insufflated the day before. Here and there a very thin layer of it adhered to the membrane and to the inner part of the meatus externus, and these were difficult to remove even with tampons of cotton-wool.

In suppurations of the tympanum I could not observe that europen diminished secretion. On the other hand, it proved to be an antiseptic dusting powder in suppurations of the external meatus, the more so as it adhered to the wall of the meatus and produced a decided, if also only slight, decrease of secretion.

I used alumnol in thirty-eight cases. This whitish-grey powder without smell, caused a burning sensation in only three patients after the first insufflation. This lasted one to two hours, and in the next days was replaced by an unpleasant sensation of warmth suddenly arising deep in the ear, and radiating from here to the throat.

In the remaining cases the insufflated powder gave rise to no unpleasant sensations.

In slight suppurations it possesses the property of building with the secreted pus stone-hard pellets; a peculiarity which condemns it (although in eight cases of acute suppuration of the tympanum it brought about cessation of the discharge after a very few days' use), for these concretions deep in the external meatus, even if they are only small, are not to be disregarded.

This was best seen in six cases of chronic otitis externa diffusa. In them, after carefully drying out the ear, I introduced a tampon of cotton-wool sprinkled with alumnol into the external meatus, and left it twenty-four hours. After the first application I noticed marked diminution of the secretion; after four or five days it entirely ceased, but only to begin anew after a pause of three to five days. Lastly, in twenty-four cases of chronic tympanic suppuration with profuse discharge, I observed no formation of the above-mentioned stony concretions, still the condition remained unaltered in spite of the daily repetition of the treatment during eight days. So I was induced to give up alumnol.

Diaphtherin or oxychinaseptol, highly praised by Kronacher¹ of Munich for surgical, and by Hamscher² for dental, practice I tried in seventeen cases. In none of the cases did I use it more than three or four times consecutively, as, in powder, it produced such symptoms as obliged me to give it up. In five cases of diffuse otitis externa, as also in nine cases of chronic suppuration of the tympanum, and whether laid in, as in the first cases, on a cotton-wool tampon, or insufflated as in the latter cases, it at once caused an increase of the secretion.

Ten minutes after the ear had been carefully dried out, and the tampon introduced, it (the tampon) was soaked through, and after removing the same it took me a long time to get the ear dried out again. If I now again laid in a tampon with diaphtherin, the same performance was repeated in the next ten to fifteen minutes.

In suppuration of the tympanum the powder lying on the position of the perforation was completely dissolved in two or three minutes, while the remaining powder was already soaked, and in ten to fifteen minutes formed a smeary, soft mass, in clearing out which fresh muco-pus was brought away.

In conclusion, the author said perhaps it would be thought eighty-six cases were not enough to fully test such agents, but he had given his experience so far. It was right that we should all do so.

SIGNALLING BY SOUND ON RAILWAYS.

By Dr. VITTORIO GRAZZI (Florence).

THE author commenced by justifying the importance of referring to this subject, which had already been treated by Moos, Novaro, Morpurgo, and by himself at the second International Otological Congress at Milan, in 1880. This subject does not interest otologists only, but the whole of mankind, and since the epoch referred to, new and painful facts have been added to those previously known, proving the dangers run by travellers and by *employees* on the railway through disease of the ear. The author said that in the period above referred to, something had been done in Italy in consequence, especially on the Adriatic line, which had nominated a distinguished otologist of Bologna as one of their surgeons, but they ought to insist that the other lines should imitate the example of

¹ "Münchener Med. Wochenschrift," 1892, p. 19.

² "Deutsche Med. Zeitung," 1892, p. 92.

the Adriatic company, and also that the latter should improve and extend this same department.

Dr. GRAZZI then spoke of several patients treated by him in Florence for disease of the ear while they were still on active duty as *employés* on the railway; and he noted how this very employment was a frequent cause of ear affections amongst railway men.

He then spoke of the terrible disaster at Limite (near Milan), in which the travellers distinctly heard the warning signals (bombs) while the firemen and stoker declared that they had heard nothing. If they had heard these signals, which were the only ones which could be employed since the thick mist made it impossible to observe optical signals, the train would have been stopped and the disaster avoided. The author did not know if the two *employés* who were the cause of this disaster were really affected with ear trouble, but in any case it seems reasonable to suppose it, since they were in the open air and declared they could not hear the explosion of the bombs which, instead, were heard by travellers shut up in the carriages.

After other considerations, Dr. Grazzi proposed the following conclusions:—

1. That the rule referring to candidates for employment on the railway be modified so as to direct that they should be as carefully examined with regard to their hearing as they now are with regard to their eyesight.
2. That officials be examined at regular periods.
3. That the acuteness of certain whistling signals be modified, because this acuteness can have a harmful effect even on healthy ears, and aggravate the progress of certain aural affections.

Dr. KIRCHNER attached great importance to the examination of the ear in the case of employés of railway companies, such as engine-drivers, guardsmen, watchmen, etc. He thought an examination of the organ of hearing, made by a competent aurist, ought to be insisted upon before entering the service, and this examination ought to be made at periodical intervals. In Bavaria many such were made, as the companies engaged aurists and oculists.

Prof. MOOS: In the Grand Duchy of Baden the hearing is carefully tested by a competent aurist. Every two years after entering the service an examination of the ear takes place.

Dr. SZENES said for the sake of completeness that in Hungary no such examination yet took place by aurists. This should be attended to as well as the examination of the eyes. Similar conditions exist, according to Prof. Politzer, in Austria.

**IS THE RESULT OF WEBER'S TEST affected by the Asymmetry
in the Cavities in the two Temporal Bones and the difference
of Structure and Form in the Bones of the Cranium?**

By Dr. CORRADI (Verona).

Lucas¹ found it difficult to concede any diagnostic importance to Weber's test from the consideration that want of symmetry in the form of

¹ Lucas (Kritischer und neues über Stimmgabeluntersuchungen. "Arch. für Ohr." xliiii. s. 123-124.)

the cranium, difference of texture, compactness or thickness between the bones of one side and those of the other, diversity in the size of the facial sinuses, as well as morbid conditions in the nasal fossæ and the naso-pharyngeal space, might modify considerably the effects of resonance, and so alter the result of an examination even when there was no morbid affection of the ear. Or, when pathological changes did exist in the ear, these other conditions might considerably modify their influence with regard to Weber's test.

On this subject the author had lately carried out some experiments in various ways. He had, for example, studied the behaviour of Weber's test on individuals affected with very large myxomas or fibromas in the nose or naso-pharynx, in whom, while one side was more or less completely free, the opposite was chiefly occupied by a new growth. He had also made observations in other individuals suffering from catarrh or empyema in the antrum of Highmore, or in others in whom he tamponed one or other of the fossæ either for medical reasons or, even in perfectly healthy people, just for a momentary experiment. In addition he had made use of an instrument fashioned like one of those bow-shaped cones used by little girls for keeping their hair off their forehead; it was made of metal and very thin on one side, and on the other side of wood; it was so constructed as to fit closely to the head, and could be easily changed so as to have the metal part now on one side of the head and now on the other without the person under examination observing the change. The tuning-fork, as a rule, was placed over the junction of these two halves.

Now the author has never, up to the present, observed that from similar conditions, morbid or artificial, any influence was exerted on Weber's test; and if there did not exist any disease of the ear, the sound of the tuning-fork, placed centrally, continued to be referred to the centre of the head.

It is therefore to be concluded that the changed conditions of resonance, in order to exert any influence on Weber's test, must be looked for in the cavities that form the apparatus of transmission (external and middle ear), cavities very small in themselves, but whose importance as developers of sound is developed by the intimate connections in which they are found with the terminal elements of the acoustic nerve, especially considering their proximity to these nerves, and the continuity of their walls with those of the capsules in which the said elements are contained. It is true that the differences in development and formation of the cranium can affect also the tympanic cavities, and in such a case it is not to be denied that the result of Weber's experiment would be influenced. However, apart from the point that in this way one alters the question under discussion, as far as the author's observations had gone, congenital differences in the size, conformation, etc. of the tympanic cavity on both sides, if met with in certain cases (as for instance in deaf mutes), represent anyhow a very exceptional phenomenon, while on the other hand, especially in regard to diagnosis of acute otitis media, the examination of the ear and of the auditory faculty would easily clear up the error.

ASSOCIATION MEETINGS.

NEW YORK ACADEMY OF MEDICINE.

SECTION OF LARYNGOLOGY AND RHINOLOGY.

Stated Meeting, held on Wednesday Evening, January 24th, 1894.

DR. D. BRYSON DELAVAN, *Chairman.*

Dr. J. WRIGHT exhibited a number of *Tubes for Cleansing the Nose and Naso-Pharynx*, devised by Prof. Wilhelm Meyer, of Copenhagen. They can be connected either with a fountain syringe or the ordinary bulb syringe.

Dr. JAMES E. H. NICHOLS exhibited a *Nasal Draw-Knife*, which he had found serviceable in removing enchondroses and small exostoses of the septum, and smoothing down the ridges that remain after the use of the trephine. It provoked little hæmorrhage, and left a smooth surface, which readily healed. It was especially useful in children, as the growths could be removed with little discomfort. Dr. Nichols said that when he devised the instrument he was not aware of the fact that a similar one had been used in London. The idea was similar to that of the annular septum knife recently exhibited by Dr. Chappell, although the construction of the knife was different.

Dr. J. WRIGHT presented a girl upon whom he had operated five years ago, when she was fifteen years old. (Case reported, "New York Med. Rec.," July 20th, 1889.) She presented a large, diffused swelling of the upper lip and left cheek. This had made its appearance when she was eleven years old, and had remained without change. There was no pain nor tenderness. The upper lip was two or three times its normal size, and projected far out from the under lip, producing a marked deformity. The skin was smooth, somewhat tense, and was natural in colour. It did not pit on pressure. An intra-nasal examination showed that the left nasal fossa was enlarged, and the septum deviated considerably to the right. The mucous membrane was atrophied in many places. The middle turbinated bone on the left side was displaced upward and inward against the septum, and along its free border there was a mucopurulent discharge. The girl was given alkaline nose washes, which produced some diminution of the swelling, and the nasal cavity presented a better opportunity for observation. Far back and high up, the middle turbinated bone was seen impinging on the septum at about the junction of the middle and posterior third, both ends of the bone being free. The hypertrophied portion of the mucous membrane was then removed

with the nasal snare, and the fragment, as large as and about the shape of the pulp of the middle finger, proved to be a hyperplasia of the mucous membrane. The douche was continued, and at the end of another week the lip and cheek had almost reached their natural outlines. At the site of the former operation, however, there was a bony excrescence, which was also removed by means of the snare and forceps. About a month after the operation, when slight thickening of the lip still remained, but after the intra-nasal wound had healed the patient was attacked with facial erysipelas, which spread all over the face and scalp. This subsided, and the swelling gradually disappeared entirely.

The patient then disappeared for about five years. Lately she reappeared, and stated that recently the right cheek had begun to swell. The swelling was tense, and pitted on pressure. The tip of the nose was also affected. There is a slight deviation of the septum towards the right, but not impinging on the middle turbinated bone to any extent. The mucous membrane is in a fair condition.

Dr. Wright stated that he has seen several other cases in which the swelling of the face was coincident with intra-nasal trouble, not of any particular form. He had seen it in both hypertrophic and atrophic rhinitis. Major, of Montreal, and other observers have reported cases of erythematous and erysipelatous lesions of the face, which seemed to depend on intra-nasal pressure, and which were relieved by treatment directed to the nose.

Dr. ROBERT C. MYLES presented a case of *Ranula*.

The ranula was about one and a half inches in length, and about three-quarters of an inch in its transverse diameter. It did not stick up above the floor of the mouth, as is usually the case, but burrowed downwards towards the inferior maxilla. Dr. Myles said he had opened the sac rather near to the tongue and removed about an ounce of fluid. Iodine was then injected, but the sac refilled. The cavity was then packed with cotton soaked in pure carbolic acid, which produced considerable inflammatory action. The ranula, however, recurred. The cavity was then curetted and a part of the sac wall extirpated, and now it is almost entirely obliterated. In treating this case he was careful to avoid injuring Wharton's duct, which was done in a previous case coming under his observation, and gave rise to a great deal of trouble.

Dr. JAMES E. NEWCOMB also presented a case of *Ranula*.

The tumour in this case was of large size, but gave rise to no discomfort.

A Case of Tracheotomy in Syphilitic Stenosis of the Larynx.

Dr. J. E. WEEKS presented a young man who had had the initial lesion of syphilis five or six years ago. In January, 1892, while in the United States army in the west, he suffered from a severe sore throat, for which he received specific medication. On account of the obstinacy of the ulcerations of the pharynx (where they first appeared), it was supposed that they might be of tubercular origin. In August, 1892, he went to Hot Springs, where he remained under treatment for five weeks.

taking the baths, etc., but with no improvement. About November 18th pharyngeal lesions prevented him from swallowing food, either solid or liquid. An unsuccessful attempt was made to pass the stomach tube and feeding per rectum was instituted. The bowels refused to tolerate the enemata, and the patient was reduced to a very low condition, weighing about ninety pounds.

At this time Dr. Weeks was requested to see the patient. He advised the use of a gargle of bichloride of mercury, 1-4000 every two hours, besides mercurial inunctions, and encouraged the patient to swallow liquid food. Under this treatment the throat became very irritable, and swallowing was almost impossible. Feeding per rectum was again instituted, and continued for two or three days. From that time the throat improved rapidly. The ulcers had destroyed the greater portion of the epiglottis, the soft palate was bound to the posterior wall of the pharynx, and there were cicatricial bands at the upper part of the pharynx. Ulcerations also surrounded the upper portion of the larynx. In March, 1893, the patient again began to have difficulty in swallowing and to suffer from dyspnœa, waking up during the night and struggling for breath. The cicatricial contraction following the ulceration went on to such a degree that the man could hardly breathe. The patient was seen by Dr. Bosworth in consultation, and it was decided to perform tracheotomy. Intubation was discussed, but was not considered feasible on account of the situation of the cicatrices; a rather large canula was put into the throat. A good recovery followed, breathing being carried on without discomfort, partly through the tube and partly through the larynx. The voice, which had been greatly impaired, also improved. Five weeks later the man weighed one hundred and thirty pounds. During this period the patient was receiving vigorous antisyphilitic treatment. Seven months after insertion the tube was removed. The larynx and lower part of the pharynx had increased quite considerably in diameter, so that respiration and swallowing were carried on with comparative ease. From that time to the present there had been no material change in the patient's condition.

The CHAIRMAN considered the case interesting in that it was exceptional in requiring tracheotomy, there being few that could not be dealt with by means of the O'Dwyer tube.

Dr. CHARLES H. KNIGHT said he did not understand what the objection was to intubation in the case just reported.

Dr. WEEKS said that Dr. Bosworth thought that the introduction of the tube would only afford temporary relief, and that contraction would go on. Moreover, the constriction was not confined to the larynx, but existed in the trachea above. He therefore considered tracheotomy preferable. Dilatation by means of the tapering soft rubber bougie was employed before tracheotomy was performed, but it gave little or no relief.

Dr. WILLIAM H. PARK referred to a case of syphilitic stenosis of the larynx in which he was obliged to perform immediate tracheotomy to relieve the dyspnœa. There was considerable difficulty in getting into the larynx on account of the perichondritis and infiltration.

Dr. KNIGHT believed that in many of these cases of specific origin tracheotomy was too hastily performed. Improvement following internal medication is rapid, and tracheotomy may usually be safely postponed—perhaps indefinitely. He referred to a case recently reported by Dr. Roe of submucous infiltration of the larynx, of specific origin, in which intubation was performed, and on the third or fourth day, when the tube was removed, the condition was so much improved that it was not reintroduced.

Dr. MYLES said he had just examined the patient presented by Dr. Weeks. The stricture seems to be near the hyoid bone, above the arytenoids, and he expressed the opinion that intubation would have failed.

Dr. WEEKS said that the stricture was in the upper larynx and lower pharynx. There appeared to be a great tendency in this case for the tissues to break down and cicatrize.

Dr. NICHOLS said that this breaking down of the tissues is Nature's way of getting rid of obstruction. He had often noticed in stenosis of the posterior naso-pharynx that ulceration sets in and the obstruction is removed. Then there is cicatrization, and the same process is repeated.

Dr. NEWCOMB presented a patient who came to the Demilt Dispensary with an *Abscess of the Neck*. This was incised and after healing a small fistulous opening remained just at the spot where the abscess pointed. This fistula is still open and communicates with a fissure of the pharynx, probably congenital. The man stated there was always a wet spot upon the neck, from which small drops of fluid exuded. His father, he states, who is in excellent health, also presents this peculiarity.

Dr. NICHOLS presented the following case for Dr. Chappell.

A man, aged twenty-eight, came to the throat department of the Manhattan Eye and Ear Hospital, on January 15th, 1894, complaining of pain in the region of the larynx, which had persisted for two weeks; it was gradually increasing and was worse on swallowing. He also had a troublesome cough of an explosive, vibrating character. He had had several attacks of nose bleed. His temperature at that time was 101.5°; pulse, 118. An examination of the larynx showed an abscess on the inferior surface of the base of the epiglottis. This was incised and the pus evacuated. The patient could then breathe more easily and swallow with less pain, but the cough still retained its peculiar character. On January 19th the patient still had some difficulty in breathing and swallowing—examination of the larynx showed probable prolapse of left ventricle, causing an asymmetrical appearance of the larynx; an examination on January 22nd showed what was thought to be a prolapse of both ventricles; January 24th, cough still present—examination of larynx showed both ventricles normal.

Dr. NICHOLS presented a patient who thought she had swallowed a fish-bone. She complained of cough and of pain on the right side of the throat and a sticking sensation on swallowing. On examination a hair was found in the pyriform sinus.

A Case of Chorditis Tuberosa. By Dr. J. WRIGHT.

A lady, aged twenty-one, devoted considerable time to singing. About two years before she came under Dr. Wright's observation her tonsils had been excised, and she was told that she had adenoid tissue in the vault. She appeared to be in the best of health, and the only history she gave was that during several months past her voice had been growing husky. On examination, the left vocal band was found to be much swollen, with ecchymotic spots, and there was a small nodule at the junction of the anterior third with the posterior two-thirds. The larynx was very irritable. Astringent applications of zinc and silver nitrate were applied, and the congestion disappeared after two or three weeks. The small nodule, however, still remained. Considerable tissue was removed from the naso-pharynx. During the holidays the patient went to Lakewood, where she was examined by a physician, who wrote that he found consolidation at the apex of the right lung. She then returned to New York, and was examined by several gentlemen, who confirmed the diagnosis of pulmonary trouble. The question now arises whether the nodule on the vocal cord was of tubercular origin or not. She has had no symptoms of tuberculosis, no rise in temperature, no cough, no expectoration. Her examiners are skilful, and there could be little doubt about her pulmonary lesion.

At the last meeting of the American Laryngological Association there was a discussion on the subject of chorditis tuberosa, and there was a difference of opinion as to whether that condition had any connection with tuberculosis or not.

Dr. WRIGHT said he did not refer to thickening of the arytenoids, but to that condition known as "singers' nodule," so frequently reported in sopranos. This girl's mother, who is now in good health, states that twenty-five years ago she had some pulmonary trouble, from which she recovered after a prolonged residence at Naples.

The CHAIRMAN stated that in his experience he had never found the slightest connection between chorditis tuberosa and tuberculosis. The subject is an important one, and worthy of careful consideration.

Dr. SIMPSON said it is well known that excessive use of the voice in singing, especially the high tones, will produce this condition of chorditis tuberosa. In such cases he has never observed any symptoms of tuberculosis. In persons who are predisposed to tuberculosis the laryngeal condition might perhaps be produced somewhat earlier than otherwise.

Dr. WRIGHT said that if chorditis tuberosa is a premonitory sign of tuberculosis, it is very important to know it, so that we can treat the general condition instead of the nodules on the cord. In his case, however, the occurrence of the two may have been a mere coincidence.

Dr. J. W. GLEITSMANN expressed the opinion that there is no connection between the two affections. Out of a large number of cases examined, he has only once seen a tumour of small size in the sections of which he succeeded in finding the tubercle bacilli.

A Case of Calculus of the Tonsil. By Dr. J. W. GLEITSMANN.

Cases of calculus of the tonsil, the speaker said, are on the whole of rare occurrence. This patient was under his care for six months before he accidentally discovered the real cause of the symptoms, which were of an indistinct character. He first came under observation in July, 1893, complaining of abnormal sensations in the region of the right tonsil. The symptoms were not pronounced in character, and varied greatly. At that time he had already been under treatment for a month or two. An examination revealed nothing abnormal in the rhino-pharynx. The right tonsil, to which special attention was attracted by the pain, was slightly enlarged. Scarification of the tonsil gave very slight relief. The man was lost sight of for a time, and recently returned, still complaining of aching pain in the right tonsil and lancinating pains towards the right ear. The anterior pillar was forcibly drawn aside with a small palate-hook, so as to get a good view of the tonsil, and as this was done a few drops of pus exuded from the tonsil. When the patient expectorated this, a stone came with it. A few days afterwards, during another examination, he expectorated a second stone. Dr. Gleitsmann exhibited the calculi, which he stated consisted chiefly of the phosphates or carbonates of lime, and leptothrix.

NEW YORK ACADEMY OF MEDICINE.

SECTION OF LARYNGOLOGY AND RHINOLOGY.

Stated Meeting, held on Wednesday Evening, February 28th, 1894.

DR. D. BRYSON DELAVAN, *Chairman.*

A Case of Laryngectomy. Presented by Dr. DWIGHT L. HUBBARD.

Operation by Dr. Hubbard, December 23rd, 1893, for carcinoma of the larynx. Male, aged forty-five; difficulty in breathing about eight months before operation. On examination, a carcinomatous growth was found within the larynx, involving the whole of the thyroid cartilage and the vocal bands, particularly on the left side. The epiglottis was not involved. Enlargement of left deep cervical glands, which were removed at time of operation, and found infiltrated with carcinomatous material; infection of glands apparently due to metastasis, as there was no direct continuity with the growth in the larynx. A Trendelenburg tampon was retained in the larynx for two weeks after operation, to prevent infection; no blood passed below the tampon. The epiglottis was not removed. Seven weeks after operation an artificial larynx was introduced, and, with the aid of a reed, the man is able to talk fairly well.

A Case of Complete Laryngectomy.

The CHAIRMAN presented a man operated on twenty-two months ago by Dr. J. Solis-Cohen, of Philadelphia. The larynx was completely

removed, and the severed end of the trachea stitched to the skin, so that all communication between the trachea and pharynx was completely cut off. The interesting point in connection with the case was that, although the man had absolutely no larynx, and there was no connection between the trachea and the pharynx, he was able to speak with fairly good articulation. It had never been positively demonstrated how in this case the voice was produced.

Dr. ROBERT C. MYLES had examined Dr. Cohen's patient, and thought that the man swallowed the air, filling a pocket formed by the constrictor muscles, and that the vibrations took place close to the œsophageal opening, just below the original site of the epiglottis. Afterwards the sound was coined into words by the soft palate, tongue, and lips, as in ordinary voice production.

Post-Nasal Cyst.

Dr. WRIGHT exhibited the remains of a cyst removed from the post-nasal space. Cysts in this locality, he said, are of rather rare occurrence.

Resection of the Hyoid Bone for Congenital Fistula of the Neck.

Dr. CARL BECK presented a woman, aged forty-five, upon whom he had performed this operation. The fistula had existed since birth, and opened in the median line, about three inches above the sternum. It discharged a gelatinous fluid, and was at times temporarily obliterated. About eighteen months ago the woman began to complain of pain in the hyoid region, and of a dry sensation in the pharynx. The galvano-cautery was introduced into the fistula, and produced complete obliteration for five weeks. The same operation was repeated twice, each time with a similar result. The lining membrane of the fistula was then excised, but only a temporary cure resulted. The subjective symptoms increased in severity. Milk injected into the fistula did not appear in the larynx or pharynx. As the lining membrane of the cyst extended down to the hyoid bone, that bone was exposed by an incision, and by chance the end of the probe slipped into a pocket behind the bone. A small portion of the hyoid bone was then removed, disclosing a cavity about the size of a cherry, with fibrous walls, and containing about three drops of gelatinous fluid. The walls of the cavity were removed and the wound closed. Since then there has been no recurrence of the fistula. The operation resulted in no interference with speech, respiration, or deglutition. The pain and dry sensation in the pharynx have disappeared.

Removal of Sequestra and a Tooth from the Floor of the Nose. By Dr. HERMAN KNAPP.

A boy, aged seven years, had a necrotic rhinitis and acute purulent otitis on the left side. The lower passage of his left nostril was blocked with muco-pus and decaying soft and hard masses of tissue. This was cleansed, and all the dead material removed with the forceps. Among the sequestra, two were conspicuous; the one, flat and hard, was removed from the lateral side of the floor of the nostril, bordering the maxillary antrum; the other, from the anterior part, was cancellous, and enclosed a tooth, the crown of which appeared to be turned upwards and backwards.

The sequestrum was fifteen millimètres long, and represented a piece of the upper jaw. The tooth was the lateral incisor, its crown being healthy and well-formed. The boy was discharged cured. Dr. Knapp referred to the case as being of great rarity.

Dr. WRIGHT said he had seen two cases like the one narrated by Dr. Knapp. In one of these an incisor tooth, with its crown inverted, was removed from the floor of the nose. The other case was that of a woman, aged forty, who had had a bicuspid tooth extracted about five years before: the root had been left and it ulcerated through into the nostril. Many such cases are on record. Dr. J. A. Wyeth, of New York, had found a tooth in the maxillary antrum.

Dr. R. JEFFREY, of Brooklyn, had seen one case in which a tooth was removed from the nostril. He had heard of a tooth removed from the lower part of the orbit.

Dr. E. MAYER referred to the case of a boy who had hare-lip, and who had an incisor tooth which, on account of the deformity, was being forced up into the anterior nares.

On Sero-Mucous Cysts beneath the Wing of the Nose; with the Report of a Case.

Dr. HERMAN KNAPP read a paper on this subject. He stated that cystic tumours in the nasal fossæ are rare, and referred to the writings of Zuckerkandl and P. McBride. Dr. Henry Chatellier reported two cases in the JOURNAL OF LARYNGOLOGY, RHINOLOGY, AND OTOTOLOGY, 1892.

Dr. Knapp's patient was a Mexican woman, aged forty-seven. Seven years before coming under observation the base of the left ala nasi was swollen and inflamed for three weeks. Eighteen months ago the swelling returned in the same place, but did not disappear, and interfered with breathing. On examination, a soft, fluctuating tumour, with smooth, resistant walls, could be felt in the skin adjacent to the base of the wing and in the vestibule of the left nostril. The intra-nasal portion was covered with a smooth, pinkish mucous membrane, not very vascular, free from irritation, painless on pressure, and not reducible by cocaine. It was apparently connected with the periosteum of the floor of the nose. The tumour seemed to have no connection with any of the accessory cavities of the nose. It disfigured the patient by raising the wing of the nose and the adjacent skin of the cheek, but caused no other discomfort excepting difficulty in breathing. On May 20th, 1893, Dr. Knapp removed the cyst by the Dieffenbach operation. An incision was made upwards along the base of the left ala nasi. After carefully dissecting the skin and fibrous tissue covering the tumour, the surface of the latter presented itself as a dark blue, delicate membrane. When the malar portion of the tumour was isolated, the wing of the nose was freed and drawn upward. When the whole tumour was laid bare it was found to be uniform, elliptical, as large as a walnut, and connected with the periosteum. In detaching it from this, its wall was accidentally incised, and a clear, mucoid liquid flowed out. The sac was then entirely detached, and the wound cleansed and sutured. The patient was discharged cured after one week. At the

present time the left naris is perfectly free, and the angle of the nose is slightly depressed and drawn up.

The origin of sero-mucous cysts in the anterior part of the nose, Dr. Knapp said, is obscure. Chatellier states that they owe their origin in some cases to glandular obstruction. Prognostically they belong to the benign formations. As regards treatment, we have to choose between three methods—first, evacuation by paracentesis; second, destruction of the interior surface of the cyst by heat or chemicals; third, extirpation. The first method is unreliable. The second method may effect a cure, but it is tedious, and if a portion of the cyst wall escapes destruction a relapse will occur. The third method is radical, and always effects a permanent cure.

In concluding his paper, Dr. Knapp referred to a case of cystic tumour of the floor of the nose reported by Dr. John Duan, of Richmond, Virginia, in the "New York Med. Journ.," Feb. 24, 1894.

Dr. W. FREUDENTHAL had seen a case of cyst in the anterior nostril. The nose on one side was very much swollen, and this mass protruded from it. The patient had it for many years, and declined operation. In the posterior nares the formation of cysts is not so uncommon.

[Such cysts are not very uncommon in the United States.]

Some Considerations on the Galvano-Cautery Puncture of Hypertrophied Tonsils.

Dr. WILLIAM K. SIMPSON read a paper on this subject. He stated that the process of reducing enlarged tonsils by galvano-cautery puncture is by no means a new one. By this method many chronic tonsillar conditions may now be quickly relieved, which formerly were fraught with considerable difficulty. While galvano-puncture of the tonsils could not be regarded as a substitute for excision by the tonsillotome, there are a certain number of conditions, however, which could not be completely relieved by excision. In these, galvano-puncture is useful. Principal among them are tonsils subject to recurrent attacks of follicular tonsillitis, and which between the attacks do not exhibit a degree of hypertrophy sufficient for removal by excision. Destruction of the tonsillar tissue in these cases by cautery puncture gives good results and insures probable immunity from subsequent attacks. Next may be mentioned hypertrophied tonsils which by their shape and degree of adhesion to the faucial pillars are not accessible to the knife. A type of cystic degeneration of the tonsil may also be cured by galvano-puncture, as also may the small but irritating hypertrophies sometimes found in and about the tonsil.

Cautery puncture is superior to treatment by other destructive agents, such as acids, caustics, and pastes, either externally applied or penetrating the tonsil. The objections raised against cautery puncture have been tediousness, pain, and severity of reaction. The first only obtains where the tonsils are very large, and in such it should only be resorted to when excision is impracticable. The remaining objections are reduced to a minimum, if not entirely overcome, when the operation is done with due care, and attention given to the *technique* and details. To overcome the

pain, Dr. Simpson injects five minims of a four per cent. solution of cocaine (freshly made) into the substance of the tonsil, using as many injections as there are cauterizations to be made, and making the injections in the areas to be punctured. By this means the anæsthetic effect is instantaneous, and the danger of cocaine intoxication is lessened. A heart stimulant is employed before injecting the cocaine, generally the aromatic spirits of ammonia. For injection, a long hypodermic needle with a short curve is used. For the punctures, a fairly strong loop-shaped electrode, curved to suit the angle of introduction. This should be pushed deeply into the tonsil, and a cutting or rotary motion made to increase the area of destruction. This to be repeated as often as necessary. It is important to confine the cauterizations to the tonsil itself, avoiding the adjacent parts, and especially avoiding the anterior faucial pillars. If necessary, the latter should be pulled away and guarded by a retractor during the operation.

Dr. R. C. MYLES said that, in making the intra-glandular injections of cocaine, he has found that most of the solution runs out through the crypts of the tonsil into the throat. He prefers the crystals of cocaine, placing them into the crypts by means of a moistened probe. If necessary, the injections can be used in addition. If the tonsils are large, their destruction by means of the cautery puncture is a slow and tedious process, and inflammation in the pillars is apt to be caused by the radiated heat. In the treatment of small tonsils, he preferred the cautery puncture to the guillotine. He had had rather a severe hæmorrhage while burning the tonsil. He employs a small, sharp electrode for the cauterizations about the periphery of the gland and in the neighbourhood of the pillars, and a larger one for the centre of the gland. Many patients, who at first object to the cutting operation, ask for it after they have undergone a few sittings with the cautery. The danger of hæmorrhage after the use of the tonsillotome may be obviated by first passing a curved needle through the tonsil, and tying a ligature around it. This can be left on for twelve or twenty-four hours. It is sometimes difficult to accomplish on account of the gagging.

Dr. J. E. NICHOLS referred to the danger of burning the anterior pillars while applying the galvano-cautery to the tonsils. The pain following such an accident is severe and persistent.

Dr. E. MAYER inquired as to the treatment of the slough produced by the cautery puncture. An application of methylene blue immediately after making the cauterizations has been very highly recommended by some; in his own hands, Dr. Mayer said, this has given very unsatisfactory results.

Dr. R. P. LINCOLN had used pyoktanin in these cases, and his experience was very similar to that of Dr. Mayer; it did not seem to obviate the pain. He advised the use of the galvano-cautery in indurated tonsils if the tonsils are not too large, although the process is usually more painful than the cutting operation. In some cases a few applications of the cautery will suffice. Hypertrophy and induration of the tonsil is usually accompanied with adhesions to the anterior pillars, and by separating these atrophy of the gland is facilitated.

Dr. F. J. QUINLAN said that during the past three or four years, following the advice of Dr. Gleitsmann, he has applied trichloroacetic acid, in crystals, to the nares and other mucous surfaces where the galvano-cautery had been used, with very gratifying results. He has used it on the tonsils after cautery puncture, and regarded it as superior to the aniline dyes.

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BREATHING IN SINGING.

By W. RAMSAY SMITH, M.B., C.M., B.Sc.,

Late Senior Assistant to the Professor of Natural History, Edinburgh University
Demonstrator of Anatomy, Edinburgh School of Medicine; and
Examiner to the Royal College of Physicians, Edinburgh.

THE importance of correct breathing habits in singing is universally acknowledged, but the precise relation of breathing to singing has not as yet, I think, been definitely pointed out. A statement of this relation may, I believe, prove not only interesting to the voice physiologist, but also of practical utility to the voice trainer and the professional singer.

Many writers on voice training have given a considerable amount of attention to the difference between ordinary breathing and breathing in singing. I may refer to some of the more important of these. Herr Emil Behnke¹ says on this subject:—

“Breathing goes on regularly while the voice is silent, but in speaking and singing both inspiration and expiration have to be regulated according to the nature of the phrases to be spoken or sung. If the speaker does not know how to take breath, and how to control the expiration, his delivery will of necessity be jerky and uncertain. But in the singer it is even more important that he should be able to fill his lungs well, and having done this, to have absolute command over his expiration; because while the speaker can arrange his sentences, his speed, and his breathing places very much at his own pleasure, the singer is bound by the music before him. It must,

¹ “The Mechanism of the Human Voice,” p. 17.

"therefore, be his aim to cultivate a proper method of breathing with the object of first getting, with the least possible fatigue, the largest possible amount of air, and then of controlling the exit of that air in the most scrupulously careful manner, so as to prevent even the smallest fraction of it from being wasted. Yet how seldom is breathing systematically practised as an indispensable preliminary to the production of tone! I have no hesitation in saying that the subject is, in many instances, dismissed with a few general observations. Pupils, of course, take breath somehow, and teachers are glad to leave this uninteresting part of the business, and to proceed to the cultivation of the voice."

Belmke here insists on the importance of purity of tone, and on the necessity of making the most of every particle of air expired. His statements leave the impression that the more vocal work that can be done with a given amount of air, so much the better, all expiration beyond *voicing* requirements being so much waste.

Hullah,² in treating this question, says:—

"The action of the lungs during speaking or singing would seem to differ from their action when the voice is at rest chiefly in this—that in the latter condition (as we have seen) inspiration and expiration are made at, or nearly at, equal intervals of time, whereas in the former, inspiration should be made as quickly and expiration as slowly as possible. The first of these acts, rapid inspiration, though demanding some care, is not hard of attainment. The second, deliberate and controlled expiration, is somewhat more so. Both will be rendered easier if we consider that the animal economy is as well cared for when expiration is the cause of sound as when it is not. Every particle of air, therefore, which a speaker or singer (in action) exhales silently, is wasted—is something taken from the force and volume and ease of his utterance. As the sound of the violin reaches the ear the instant the bow of the skilful violinist touches the string, so should the voice, at the instant expiration—the *bowing* of the vocalist—begins; no interval of time being left during which air may escape from the lungs without being turned to account in the production of sound. Many speakers, and even singers, disregard this; having taken breath they give some of it out again *before* their utterance commences, obviously with a loss of power."

The point that Hullah states so emphatically here—that silent exhalation is waste—is just the point I wish presently to examine. What he calls loss of power, viz., giving out breath before utterance commences, is really, in the case of many people, a safety-valve to prevent breathiness and impurity of tone.

Sir Morell Mackenzie,³ writing on voice production, says:—

"As regards the blast, the great object to be aimed at is that no air shall be wasted or expended unproductively. Just the amount required for the particular effect in view must be used. Too strong a current tends to raise the pitch, a result which can only be prevented

² "The Speaking Voice," 2nd edition, p. 30.

³ "Hygiene of the Vocal Organs," p. 119.

“ by extra tension of the vocal cords, which of course entails unnecessary
 “ strain. Or the air may be sent up with such velocity that some of it
 “ ‘leaks’ through before the glottis has time to intercept it, or with such
 “ violence as to force the lips of the chink a little too far apart. In either
 “ case so much motive power is thrown away, and, besides, the brilliancy
 “ and fulness of the tone are lost. The *coup de glotte*, or exact corre-
 “ spondence between the arrival of the air at the larynx and the adjust-
 “ ment of the cords to receive it, is a point that cannot be too strongly
 “ insisted on. Neither books nor dissection can teach this; the sole
 “ guide is the *muscular sense*, helped and enlightened by a competent
 “ instructor.

“ Madame Seiler strongly condemns the system of training the voice
 “ at its maximum of intensity, the lungs being inflated to their utmost
 “ capacity, and the accumulated breath discharged at the glottis as
 “ from the mouth of a cannon. She, on the contrary, maintains that by
 “ practice in singing at slight breathing pressure, or *piano*, and aiming at
 “ purity and sweetness, rather than mere loudness of tone, more complete
 “ control of the organs is acquired, and much less risk of physical injury
 “ is incurred. The breathing should be so much under control, and so
 “ entirely transformed, as it were, into sound, that the flame of a candle
 “ at a distance of a few inches from the performer’s mouth should not
 “ flicker as he sings. The power of so exactly regulating the emission
 “ of the breath is a good test of whether the voice is being properly
 “ used or not. It is a point very strongly insisted on by Garcia, if not
 “ originally propounded by him.”

Mackenzie, like the two former authors, lays stress upon the fact that purity of tone depends upon the play of a certain amount of air upon the vocal cords; upon the passage of a definite quantity of air through the glottis, anything in excess of this tending to impurity of tone. In connection with this quotation I may here point out in passing that a tendency to breathiness, the strong inclination to leakage, shows that some need of the system requires to be satisfied.

Mr. Curwen,⁴ whose powers of observation and reasoning were of the very keenest description, and whose faculty of specializing seemed to be unbounded in any subject to which he turned his attention, makes a distinct advance on all those authors I have quoted, and what he says is so pertinent to the subject of my paper that I give it in full:—

“ The singer’s purpose necessitates a larger use of breath than is
 “ needed for ordinary respiration. Professor Huxley shows that if a
 “ pair of lungs holds, when filled in the ordinary way, two hundred and
 “ thirty cubic inches of air, they can be made to hold, by means of a
 “ deep inspiration, three hundred and thirty—that is, not far from half
 “ as much more. Now, for every muscular effort, as that of working or
 “ of running, as well as of public speaking and singing, more fresh
 “ blood is required—that is, blood newly purified by the oxygen breathed
 “ into the lungs. Hence it is that in preparing for any strong effort of
 “ the body we naturally fill the lungs. The greater the muscular effort
 “ the larger the demand for oxygen in the lungs. A man is strong, not

⁴ “The Teacher’s Manual,” p. 163.

"merely in proportion to the size of his bones and muscles, but chiefly in proportion to his power of taking plenty of *good* air into his lungs. " 'If a man can breathe well,' says Dr. Taylor, 'he can generally work well; if short winded, though he may have the muscles of an Ajax, he will be left behind to a certainty in the race of life.' It is on this account most needful that the singer should be practised in these exercises of chest filling.

"But it is not only for the muscular effort he is making that the singer needs to fill the air cells of his lungs so well; he has often to sing long passages or long tones in one breath, and must, therefore, know how to lay in a good store, and that habitually. *The ordinary breathing processes are not sufficient for the singer.* He must not be surprised if his teacher requires from him a much fuller and freer use of all the muscles of diaphragm, ribs and chest. He may take comfort, however, from this consideration, that many an one has been cured of incipient consumption by singing exercises. This has been well known to voice trainers, even before the principles of the 'movement cure' were developed. But remember always that it is not the foul air of a close room which gives oxygen to the blood, but the fresh air of a room well ventilated.

"There is another great distinction between ordinary breathing and the breathing of a singer. It is that, in ordinary breathing, the expiration, or 'breathing out,' is done by simply 'letting fall' the ribs and diaphragm with very little muscular effort, whereas, in the singer's breathing, the chief art lies in giving out the breath *gradually*. To do this the muscles which govern the breath have laid upon them a new and unaccustomed work, that of *not allowing* the walls of the chest to collapse, and of controlling the economical dealing out of the breath. As the muscles have in this a new task to perform, peculiar to the singer's wants, they will need special and careful drill, not violent or long sustained, but frequent. That extra one hundred cubic inches of air, of which Professor Huxley speaks, must be *easily* drawn into the lungs and carefully and steadily let out."

The advance Mr. Curwen here makes over the other authors quoted is that he recognizes and marks prominently the fact that a singer, like a runner or a public speaker, requires a greater amount of air for the needs of the system. This is the point I would emphasize, viz., that for the extra muscular exertion of singing the singer requires an extra supply of fresh air for the system—*i.e.*, the total amount of air *respired* in a given time in singing requires to be greater than in an equal period of inactivity. Had Mr. Curwen advanced a step further he would have touched the problem I am dealing with in this communication. What he did not see was this, that the very act of singing a pure tone militates against this increased respiration by interfering seriously with the amount of air expired in a given time.⁵ Here then is the singer's difficulty—to obtain sufficient air for his *vital* needs while using the proper amount for his *voicing* needs.

⁵ This is observed still more strikingly if one tries to sing during the act of walking along a road or up a steep hill. In these cases the muscular energy required is greater than in singing, and the walker gets out of breath so much the more readily than the singer.

The fact that requires emphasis is this, that pure *voicing* requires (or allows) only a very small quantity of air to leave the lungs in a given time, and so interferes considerably with the freer respiration that the act of singing demands. If a singer were to *expire* air only when *voicing* he would soon sing himself blue in the face. A singer out of breath is a singer that did not get out enough of breath. The vital air required is large in amount, the air allowed to pass in *voicing* is very small, and between these two necessities the singer is in a dilemma.

I believe I can best illustrate this struggle between the needs of the vital organism and the requirements of voicing in pure tones by narrating the case that brought the problem first under my notice.

A man had tracheotomy performed for disease of the larynx. An opening about one-sixteenth of an inch in diameter allowed air to pass into and through the larynx. Breathing was carried on through the tracheotomy tube. When the man wished to speak, he placed his finger over the opening of the tube so as to force a certain amount of air through the larynx, at the same time allowing a large amount of the expired air to pass out of the tube by the side of his finger. The small quantity of air that passed through the minute opening in the larynx was quite sufficient for *voicing* purposes. When, however, he closed up the tracheotomy tube and endeavoured to breathe (*i.e.* to obtain his *vital* air) through the small opening he nearly choked in a few seconds. The opening was too small as well for expiration as for inspiration.⁶

This case illustrates very clearly what is also shown by the candle-flame experiment, that voicing requires very little air, far less than normally passes through the larynx in ordinary expiration. If, therefore, a singer were to rely on the act of *voicing* to get rid of the usual quantity of air in his lungs, he would soon find himself out of breath. "Smuggle in the breath" is a well-known saying among many singers. "Smuggle out the breath" would be as good a rule.

The practical application of all this is that singers should breathe as much as possible, that since the purest musical tone is produced without any excess of voicing air, the lungs should not only be filled often, but also as completely emptied as possible before an inspiration. In other words, we are brought to see the physiological reason for a good rule laid down by one of the best voice trainers, viz., "Take breath whenever there is an opportunity." This was the rule Mrs. Stapleton said that she received from her trainer, Mr. Welsh, who laid so much stress on correct breathing that he drilled his pupil in this art for three months before he allowed her to sing a single note.

⁶ I may state that there was no flap forming a valve and preventing inspiration; the opening was perfectly patent.

ELEVENTH INTERNATIONAL MEDICAL CONGRESS IN ROME.

SECTION OF LARYNGOLOGY.

(Continued.)

On INTRA-LARYNGEAL INJECTIONS in the TREATMENT of DISEASES of the LARYNX, TRACHEA, and BRONCHI.

By ADOLPH BRONNER, M.D.,

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In the treatment of diseases of the larynx, trachea, and bronchi, it is naturally of great importance that we should apply remedies locally ; and the better able we may be to do so, the better must be our chances of curing the diseased mucous membrane.

I take it that in treating laryngitis and bronchitis, accompanied as they mostly are by irritation and cough, we aim, roughly speaking, at two things : firstly to cure the disease and secondly to relieve the cough. We know that if once we can remove the irritation the chances of curing the disease are very much better. Now in cocaine and menthol, especially the latter, we have remedies, the local application of which in many cases relieves the cough at once, and sometimes for hours. I generally use a five to twenty per cent. solution of menthol in paroline. This is a mineral oil, colourless and tasteless, and obtained by the fractional distillation of petroleum. It does not irritate the mucous membrane and does not become rancid. According to the prevalent method of treatment, we try to relieve the cough by sedatives which cannot but be injurious to the patient.

We know that the local application to the mucous membrane of other parts of the body of iodoform, nitrate of silver, lactic acid, menthol, salol, and euphen, is followed by excellent results. These are some of the drugs which can safely be injected into the larynx. I may add that in speaking of intra-laryngeal injections, I mean injections through the glottis into the cavity of the larynx and not injections under the mucous membrane. The injected fluid passes into the larynx and trachea and readily enters the larger bronchi.

Experience proves that large quantities of non-irritating and aseptic fluid can be safely injected into the trachea, and that they are absorbed. Botey ("Bulletin Med.," 2nd July, 1890, and "Annales des Maladies de l'Oreille," 8th August, 1890) injected one to two grammes of distilled water into the trachea of rabbits, with no bad results. He injected up to fifty grammes into his own larynx. Philip ("Edinburgh Med. Journ.," March, 1891), in speaking of intra-laryngeal injections in the treatment of tubercular disease of the lungs, says : "So simple indeed is this

"method, that I have been led to make use of the respiratory mucous membrane for the absorption of a variety of remedies, when the gastro-intestinal tract was not available." Schmaltz ("Deutsche Med. Woch.," March 10th, 1888) speaks of injecting up to one hundred grammes of an alum and salt solution into the trachea of horses through the skin in the treatment of chronic atrophic laryngitis. In cases of morbus maculosus he injects ten to twelve grammes of a one per cent. iodine and five per cent. iodide of potassium solution.

As regards the larynx and trachea, I take them together, as in most cases, especially if chronic, we know that not only the vocal cords and the parts above, but also the parts below the vocal cords are affected. However much we may treat the vocal cords we cannot hope to effect a cure as long as the parts below remain diseased.

In cases of tubercular laryngitis, I use a five to twenty per cent. solution of menthol in paroleine. We owe a deep debt of gratitude to Prof. Rosenberg, who first recommended this remedy. In some cases, however, menthol causes great irritation, and cannot be used. Guaiacol two per cent. or salol twenty to thirty per cent. can be added.

Injections of salol seem to me to be very useful, and I should like to ask any of the gentlemen present if they have had any experience in the treatment of tubercular disease with salol. Guaiacol and salol act not only locally, but are also absorbed into the system. Balsam of Peru can also be injected. Philip (*loc. cit.*) used balsam of Peru and eucalyptus dissolved in chloroform and olive oil. Lactic acid up to thirty per cent. is recommended by Dr. Brehmer ("Mittheilungen aus Gerbersdorf," 1889).

Beehag ("Edinburgh Med. Journ.," Jan., 1888) injects menthol and olive oil in the treatment of tubercular disease of the lungs. Masini ("La Riforma Med. Journ.," November 3rd, 1890) also uses menthol and creosote. Downie ("Brit. Med. Journ.," April 18th, 1891) applied menthol and creosote or guaiacol. In the more severe cases we must of course also apply lactic acid with the brush and use the curette.

In the treatment of chronic laryngo-tracheitis the injections are often very useful. This affection is very common in the North of England, and although not dangerous in itself, is certainly often accompanied by most distressing symptoms, and the patients are frequently not able to get a good night's rest for weeks or months. A similar cough is frequently met with in incipient phthisis. A patient of mine had been troubled with a tracheal cough for years, and was on that account refused by a well-known insurance company. About thirty injections of menthol and euphorben completely cured the cough.

In cases of chronic laryngitis a one to five per cent. solution of nitrate of silver, or a five to thirty per cent. solution of lactic acid can be used. The injections also give excellent results in the treatment of chronic dry or atrophic catarrh of the larynx. This disease is very prevalent in Yorkshire among the poor, due I believe partly to the damp climate, and partly to the fact that so many people work in badly ventilated mills in which much gas is burnt.

The effect of intra-laryngeal injections is most marked in the treatment of fetid bronchitis and of bronchiectasis; after twenty to thirty injections

the offensive odour of the expectoration may disappear altogether and for some time. Europhen, guaiacol and salol can be used. I have recently been trying weak solutions of myrtol and oleum pimenthæ, and find the results are excellent and lasting, and hope at some future time to publish a number of cases treated with these remedies.

Grainger Stewart ("Brit. Med. Journ.," June 2nd, 1893) has successfully treated several cases of bronchiectasis with injections of a solution of menthol (ten per cent.) and guaiacol (two per cent.) in olive oil. In former years strong solutions of nitrate of silver were injected in the treatment of laryngeal croup and diphtheria. Loiseau ("Bulletin M. de l'Acad.," 1857, page 118) recommends this method in preference to tracheotomy. Trousseau (*loc. cit.*) has also tried nitrate of silver, but prefers tracheotomy.

The stronger remedies can, of course, only be applied under the guidance of the laryngeal mirror. But the non-irritating injections, such as menthol and guaiacol, can be used without the mirror, and in many cases the patients learn to inject themselves. It is to this fact that I should like to draw your particular attention. It is not everybody who can afford the time or money to see a medical man daily for weeks or even months, as may be necessary in some cases. I use a silver and glass syringe which can be sterilized. A similar syringe can be ordered for the patient. Down (London) and Pfau (Berlin) make some very cheap aseptic syringes. If used by the patient the syringe should be sterilized at least once a week, and if used by the surgeon, after each injection, or each patient should have his own tube, which can be attached to the end of the syringe. Vulcanite syringes are difficult to sterilize and should never be used. The fluid injections should also be sterilized.

The use of intra-laryngeal injections in the treatment of diseases of the larynx and bronchi is nothing new or original. As far back as 1852 ("Lancet," June 19th) we find that Theophilus Thompson described a glass and silver laryngeal syringe at a meeting of the Medical Society of London. In 1865 ("Arch. Klin. Med.," page 219) Bing recommended a similar syringe.

The method is, however, not mentioned in most of the text-books, nor is it practised by many laryngologists. Dr. Max Schaeffer seems to be one of the few who recommend the method. I have found the injections so very useful in many cases, that I have ventured to bring the subject before you in the hope that some of the gentlemen present, who have had a much larger and more varied experience than myself, may give the meeting the benefit of their observations.

SYPHILITIC PARALYSES OF THE LARYNX.

By Dr. RICARDO BOTEY.

In my opinion, among the causes producing paralysis of the larynx, principally of the posticus, syphilis occupies a more important place than is generally accorded to it. It is, in my experience, far ahead of any other cause, aneurisms of the arch of the aorta coming next, in spite of the considerable place they hold in the etiology of these affections.

The fortunes of the clinic, or perhaps the frequency of syphilis in the country where we now practice oto-laryngology, has permitted us to observe five cases, and almost always in circumstances where there was nothing apparent to explain any compression of either recurrent. Ever since our first observations we have held it to be almost a clinical aphorism to consider as syphilitic every paralysis of one or both abductors, when aneurism, œsophageal, mediastinal tumour, etc., do not explain the median position of the vocal cords. In other words, when we find one or both vocal cords in the median or cadaveric position, and our examination and questioning is negative as to the cause, we administer antisyphilitic treatment, and almost always the paralysis disappears, or improves considerably, often at the end of a few days. Sooner or later we end by finding traces of lues, in spite of its being very often hidden, and denied by the patient, as for instance in the following case :—

CASE I.

On April 5th, 1891, I was called into consultation by Prof. Pi y Suñer of Barcelona, to examine one of his patients, who for some hours had breathed with extreme difficulty, producing marked stridor. Mad. A. N. belonged to one of the first families in Barcelona. was forty-four years of age, and the mother of two robust children. She had a good external appearance. There was nothing special in the history of father and mother, who were still both alive in spite of advanced age. The patient's own history was excellent. She had never been seriously ill except for a little nervousness and anemia. From the commencement of the winter she had coughed occasionally, had short breath, and was often dyspnoëic at nights. During the latter five or six weeks the voice had been a little veiled and respiration more and more difficult, but she was not ill, and swallowed perfectly. On examination of the larynx the left vocal cord was not in the cadaveric but in the median position, *i.e.*, in the position of complete paralysis of the crico-arytenoid muscles. The right vocal cord was reddened and slightly infiltrated, principally at the centre, where it formed a marked convexity, the centre of which touched the opposite vocal cord, and air passed with a whistling noise through the two small spaces in front and behind this convexity. This vocal cord was also paralyzed, probably in the median position, and the central eminence on the right cord had happily prevented the patient dying from suffocation. There was, therefore, a complete paralysis of both postici. Her ordinary physician was unable to find any cause for the explanation of this double paralysis; the heart, lungs, thyroid gland, cervical glands, and nervous centres, all appeared to be in a condition of health. As this was not the first occasion I had observed this state of things, I stated to Dr. Pi that the condition was probably one of syphilitic paralysis of the abductors. It was difficult to convince him, but under doses of mercury and iodide of potassium—small at first because of the laryngeal congestion which often occurs, and which might suddenly suffocate the patient—at the end of forty-eight hours the patient breathed much better. The left vocal cord began to separate two millimètres from the median line during inspiration and approached during phonation. All the rest of the laryngeal cavity

offered, with the exception of swelling and paralysis of the right cord, a normal aspect. I then administered a mixed and very energetic treatment, and at the end of three months the functions of the larynx became normal, respiration was normal, and the vocal cords moved physiologically.

CASE II.

Eduardo C., forty years of age, consulted me on January 15th, 1890, for hoarseness lasting three months. He confessed to having had syphilis at twenty-six, skin manifestations, alopecia, onychia of the left index. The right vocal cord was in adduction and immovable, the left cord was perfectly normal. The larynx was congested and red, but there was no infiltration.

Examination of the neck and chest did not explain the condition, and there was no nervous affection. Iodide of potassium and mercurial frictions ended in cure, which was complete at the end of five months.

CASE III.

Maria M., twenty-seven years of age, married six months previously, consulted me for nocturnal dyspnoea, from which she had suffered a few days after her marriage. Her voice was, at intervals, deep and bitonal. There was nothing in the nose, but a stellate cicatrix in the pharynx, nothing in the neck or chest, and not the least nervous affection. The left vocal cord was in the cadaveric position; beyond this, the larynx was perfectly normal. The right vocal cord passed beyond the median line during phonation in order to meet its fellow, which was immovable. Nothing apparently explained this paralysis. Under antisiphilitic treatment, cure was effected in four months. This patient has always denied syphilis.

CASE IV.

Enrique S., aged thirty-seven, denied syphilis, had been dyspeptic for three years, and a little neurasthenic at intervals. He consulted me on May 10th, 1892, for a feeling of pricking and heat in the throat, principally in the interval between meals. Nose normal, pharynx a little anæmic, no granulations. I thought his symptoms due to a pharyngeal paræsthesia. He has been hoarse for the last five or six months. At the second visit I examined the larynx, which I had neglected to do at the first visit, not thinking it necessary, and having but little time. To my great surprise I found the right vocal cord in complete adduction. Respiration was easy. During phonation the left vocal cord was compensatory, and the voice consequently normal. There was no affection of the nervous centres, no tabes, nothing in the neck and cheek. The patient denied having had syphilis, but confessed to a blenorragia at twenty years of age. Iodides and mercury in large doses produced complete cure in two and a half months.

CASE V.

Fernando M., aged forty-two, a labourer from the province of Tarragon, and living at Falset, consulted me on June 20th, 1893, for a dry cough and nasal obstruction, dating from three years previously. His

history was good, his father dying at eighty-three of pneumonia; his mother is still alive and works in the fields. He himself has always had excellent health. Ten years ago he had syphilis, chancre, papular roseola, etc., which was treated by a specialist in Tarragon without leaving any traces. He was well treated and the patient conscientiously carried it out. The nasal fossæ were filled with mucous polypi completely obstructing the cavity. Chronic pharyngitis, and congestion and catarrh of the larynx existed, especially over the arytenoids, and the left vocal cord was paralyzed in the cadaveric position; respiration was easy, the voice was a little raucous, and thick and eunuchoid—he had spoken for seven or eight months almost entirely in falsetto and head voice. During phonation the right vocal cord approached its fellow by passing over the mid-line. On the glosso-epiglottic fold was an ulceration, crateriform, deep, sanious, covered with grey pus; this ulceration was about one centimètre in length and six or seven millimetres in breadth. It had the appearance of a specific lesion. The nasal polypi were extirpated in several sittings with the cold wire snare. The ulcer was cauterized with pure chromic acid fused on a probe. Internal treatment was energetically followed with the poli-iodides and biniodide of mercury, and intramuscular injections of bichloride were given every forty-eight hours, sprays of corrosive sublimate 1—1000 also being employed.

On the ninth day of this treatment the left cord commenced to move a little outwards during inspiration; little by little it acquired more mobility. I still see this patient, but in spite of medication for a long time, this vocal cord does not separate completely during deep inspiration; its excursions are more limited than that of the opposite side; it is sluggish, and sometimes during a deep inspiration it approaches the median line suddenly, as if fatigued. In spite of this, the voice is now absolutely normal, and respiration quite easy. The ulcer at the base of the tongue has been completely healed for a long time. It is scarcely necessary to add that the mucous polypi of the nose no longer exist, and that probably he will return in a few months to have others removed.

We may state the opinion that syphilitic laryngeal paralyses have nothing special, and only that, further, in all the cases observed, including our own, we may declare that they are of the nature of a complete recurrent paralysis. These paralytic laryngeal affections, besides, constitute often an external sign of the existence of a morbid process of specific nature, and we must not forget that these paralyses may exist, and very often, without syphilitic lesions of the larynx or throat, and without marked alteration of the voice or respiration.

As from our bibliographical researches it appears that there are very few complete works upon this subject, we have desired to publish some further observations upon this interesting subject, which we shall develop more completely in a memoir of which this is only an abridged clinical abstract. I designedly do not therefore enter into the pathogeny of syphilitic laryngoplegias, beyond that I believe that it resides almost always in the peripheral nerves and nervous centres, and never, or scarcely ever in the muscles of the larynx or in the crico-arytenoid articulation.

CONCLUSIONS.

1. The most frequent paralysis of the larynx of syphilitic origin is paralysis of the recurrent, or of one of the posterior crico-arytenoids.

2. This paralysis is very often bilateral, but monolateral paralysis may exist more frequently, since the physician has not the opportunity of observing them, because they do not affect the respiration nor deeply alter the voice.

3. These paralyzes are very rarely accompanied with material syphilitic lesions of the larynx, and when they exist they are quite independent of the syphilitic lesions coexisting in the same organ.

Note by Dr. MICHEL DANSAC.

RESEARCHES on the Condition of the NERVES in TUBERCULAR ARYTENOIDITIS and in the Stump of the CICATRIX after Surgical Ablation.

It is to Gouguenheim and Balzer that belongs the honour of having first described the nervous lesions of the endo-laryngeal tissues in laryngeal tuberculosis.

In 1883 and on many occasions Dr. Gouguenheim showed the importance and *rôle* of the pathological nervous filaments in the dyspnœic and dysphagic symptoms. It is to him that we owe the analysis of all the affections formerly confused and grouped under the term "œdema of the glottis." This year, under the direction of our master, reviewing this subject of the study of arytoiditis, we have sought the histological nature of the nervous lesions.

Fixing, in our picro-chromo-nitric liquid, the fragments after their ablation, we have obtained, thanks to a new *technique*, unexpected results.

Up to the present all authors have fixed their attention only on the myeline or Wallerian degeneration. Gombault, alone, recently remarked the constant neglect of the axis cylinder, and we can confirm to-day that which he clearly demonstrated in 1889—to wit, that there is no constant and necessary correlation between the condition of the myeline and that of the axis cylinder.

The technical methods generally employed — viz., Wiegert's and Golgi's—have given us negative or nearly negative results. Rarely could we find some sheaths of myeline, spaces in the axis cylinder, fragmentary or interrupted. In all cases these myeline lesions were accompanied with connective tissue lesions of perineuritis entirely agreeing with those described by Gouguenheim and Balzer. This rarity of nerves appeared to us discordant with the dyspnœic and dysphagic phenomena, and with the hypertrophy of the laryngeal tissues, and we employed then the methods of Sahli (methylene blue), Dopil, and other colouring matters, such as negrocine and chloride of gold, the action of which is especially upon the axis cylinder. This last reagent, employed according to the directions of Rauvier, has demonstrated to us an extraordinary richness of nerves. The abundance was such that, from the possibility of the

concomitant action of gold upon fibrine, vascular walls and amorphous ground tissue, we sought to differentiate by a special process the impregnation of the axis cylinder from that of these latter elements. The results of these histological researches will be found in the "Bulletins de la Société Anatomique," October and November, 1893, and in the "Annales des Maladies de l'Oreille" of Gouguenheim and Lermoyez, December, 1893, along with the description of the methods. Reviewing them, we may say that side by side with rare lesions of the myeline there always exists a proliferation of the nervous terminations of the peripheral nervous filaments—in a word, and more correctly speaking, a veritable neuroma of regeneration. The nerve proliferation is the more abundant as the tubercular process, with its characteristic lesions, is more pronounced. The centre of the tubercle in process of organization, the circumference of the glandular acini invaded by the bacilli, the periphery of fibrous tubercular nodules, are constituted in our sections essentially by axis cylinder elements. These latter, hypertrophied, tumefied, guide and regulate the inflammatory sclerosis, always proportional to the richness and abundance of axis cylinders. It is, therefore, easy to see that the perineuritis described by Balzer as the only characteristic lesion is in reality only sclerosis secondary to the proliferation of the nerve axis cylinder. It is, as we have said, a pseudo-neuroma—i.e., a lesion having at once the characters of tumours properly so called (nerve hyperplasias) and of inflammations. The hypertrophy and multiplicity of the axis cylinders, as far as their finest superficial nerve terminations, explain why in certain arytoidites hyperæsthesia is so pronounced at the same time as the tissues of this region are hypertrophied, sometimes so much as to simulate glottic œdema. It explains how ablation of this hyperplastic nervous production of inflammatory infectious origin is followed by immediate and definitive disappearance of dyspnoea and dysphagia, which depend directly upon the excitation, permanent or temporary, of hyperplastic and proliferating filaments. These nervous alterations cannot be constantly so characterized, because the arytoid epiglottic tubercular masses are not always accompanied with such violent dysphagia. In certain patients dysphagia, however, appears when the tissue is not tumefied beyond measure. We have been struck by the relief which surgical treatment nearly always gives to the sufferings of these patients, and at the same time the pain diminishes or disappears, respiration is conducted more easily, air enters freely into the respiratory passages, and, yet more interesting, the voice assumes a *timbre* unknown before, provided that the false cords are not too greatly altered.

THE TREATMENT of VERTICAL DEVIATIONS of the NASAL SEPTUM without THICKENING.

By Dr. RICARDO BOTEX.

For a long time we have treated deviations, thickenings, and spurs of the nasal septum by mono- and bipolar electrolysis, with Fraenkel's cutting forceps (spurs principally), and Bosworth's saw. Generally in

our practice we rather prefer electrolysis for horizontal inferior deviations (Loewenberg's classification) with thickening, and cutting forceps for spurs ; but when there are vertical deviations of the cartilaginous septum, and in these cases the cause is very often traumatic, it is only the quadrangular cartilage which is affected, and there is scarcely ever any thickening, then the destruction of the projecting portion, which more or less completely obstructs the anterior part of one of the nasal fossæ, leads almost surely to a more or less large perforation of the septum, because as that is only doubled vertically, the projecting portion is empty, and I believe consequently that it is quite irrational to endeavour to eliminate it.

We therefore understand that in these cases it is necessary to replace the deviated cartilaginous septum. But we must acknowledge that in practice it is nearly always very difficult to obtain this with the instruments used ; to maintain it in a given position is very often impracticable, since it frequently returns to its first position when the apparatus is removed.

We know that this occurs because the septum is large, and possesses an extraordinary tendency to preserve the curved form, for it is necessary to remember that this septum is fixed above by the vault of the nose, and below by the floor of the nasal fossæ, fixing it strongly in this position.

Remembering these well-known facts, it necessarily follows that the inferior insertion of the cartilaginous septum must be dislocated, a small portion of the septum must be resected, and one or two vertical incisions must be made in order afterwards to easily replace the septum and maintain it definitely in the desired position, by placing simply in each nasal fossa a small tampon of iodoform gauze. That is at least our own practice, and has given us excellent results in the two patients upon whom we have last operated. Without entering into anatomico-pathological considerations or bibliographical researches which would prolong this work uselessly, I will simply expose my method of procedure.

In the first place, I must say that in order to succeed in cutting the mucous membrane and the cartilage more or less perpendicularly to its surface, and to avoid making the cutting penetrate too deeply into the tissues—that is to say, piercing the septum from one side to the other—I have had small cutting bistouries constructed only two or three millimètres from the point, and having at the same time a special double curve, on the blade and stem, appropriate to each side of the septum, according as the deviation is right or left. By this means I operate always much more rapidly and correctly, for the operative field is very restricted, and we have to operate with extreme difficulty, and often more slowly than we could desire, and the abundant hæmorrhage, which is absolutely inevitable, impedes very often the operative procedure. This obliges us to extend it over two sittings.

I commence by anesthetizing with a twenty per cent. solution of cocaine by placing tampons of wool on the region to be operated upon for eight to ten minutes. I then make a horizontal incision from the point of junction of the septum with the floor of the nasal fossæ as long as possible, and on the side of the nasal fossæ corresponding to the concavity—*i.e.*, in the largest nasal fossa, and as far as the commencement

of this concavity. This incision ought to take in all or nearly all of the inferior insertion of the cartilaginous septum, respecting, however, the mucous membrane of the opposite side.

I then make three vertical incisions over the membrane from the vault to the floor of the fossa. These are deep and through the mucous membrane, the perichondrium and the cartilage, but care must be taken not to penetrate into the opposite side, which is sometimes difficult to avoid—the first vertical incision over the most distant point where the vertical deviation commences, the second over the centre of the concavity, and the third, which is sometimes useless, over the anterior part of the cartilaginous septum, some millimètres behind the point of junction of this with the lobule of the nose and the sub-septum. I then bare the mucous membrane and the perichondrium of the triangular flap formed by the vertical, central and horizontal incisions, and also the cartilage to a sufficient extent, with small curved scissors. I resect a portion of cartilage, large or small according to the case, on the posterior edge of the vertical incision, and another small portion on the inferior edge which touches the septum, pushing the septum through the other fossa with a plane spatula to facilitate operation.

I then replace the flap of mucous membrane and mobilize the septum through the other fossa, which is easily replaced, as it is broken by the vertical incisions into two quadrangular segments which are juxtaposed on the same vertical plane. The inferior edge of the septum is also displaced, and directed on the median plane. An iodoform gauze tampon suffices to maintain the parts in position and contact without suturing.

The vertical anterior incision serves to expose the anterior extremity of the septal cartilage, which sometimes makes, especially after its replacement, a pretty evident projection into the vestibule. When, after having exposed a small portion of these two faces, a small portion can be removed with scissors, this perfects the operation from an æsthetic point of view.

At the end of twenty-four hours I remove the first tampon, which is soiled by the blood and mucus, for hæmorrhage often much impedes the operation. This tampon is replaced by another, which is removed after forty-eight hours, and this is repeated once or twice afterwards. Iodoform insufflations for a few days then suffice, and after the second or third tampon the wounds are already united. There is then no perforation if the mucous membrane of the opposite side is preserved, even when this has been pierced with the bistoury, which is very easily done. But if a small perforation has unhappily occurred, its importance will not be great, provided we have obtained a good replacement of the cartilaginous septum. When I devised and practised this operation in 1892 I had no knowledge of any similar operations. Bibliographical researches, which I have lately made, have apprised me that Petersen ("Berliner Klin. Woch.," 1893) had already devised something of the same kind, but with different procedure (horizontal incision and vertical incision to the base and centre of the convexity of the septum, resection of the projecting portions), and that Cholewa had also dealt with it ("Monats. für Ohrenheilk.," September, 1891), and Chatellier had devised it without

knowing in 1887 ("Arch. de Laryngol.," May, June, 1892). If I had then been aware of these works I should perhaps have tried this method, which I believe to be applicable to certain brusque projecting deviations, and which I believe, besides, easier to execute than mine, but I reserve to myself later the trial of these two on a larger scale, and I shall then publish a more complete work.

CONCLUSIONS.

1. The treatment of vertical deviations without thickening cannot be conducted with electrolysis, and less still with the galvano-cautery.

2. In the destruction of the projecting portion of these two agents, there is necessarily produced a more or less considerable perforation of the septum, without correction of the deviation.

3. The best treatment is my method of sub-perichondrial resection of a portion of the quadrangular cartilage, followed by consecutive replacement.

HYPODERMIC MEDICINE: PHOSPHORUS and PHTHISIS.

By Dr. L. ROUSSEL.

(*Résumé.*)

After having in 1865 perfected the method of transfusion of blood, which I have performed over two hundred times with my direct transfuser, and after the intra-venous infusion of medicated liquids, I developed the method of subcutaneous injection. I studied upon myself and published in 1863 the injectable formula for sulphate of atropine, and in 1880 the formulæ and indications for injections of salicylate of iron, arseniate of strychnine, sparteine, antipyrin, phosphate of soda, lithine, pilocarpin, cyanide of mercury, chloride of gold, etc. All were employed in aqueous solution, injected into the buttock with a syringe of aseptic celluloid and needle, of 0.05 centimètre in length, and were painless and very active.

I published in 1885 a method of making deep interstitial injections and pulverizations of the trachea through the crico-thyroid membrane by a long needle for laryngeal phthisis.

Finding that the most active antiseptics—the volatile vegetable essences and aromatic substances—cannot be injected by reason of their insolubility in water and caustics, I have invented the methods of injecting sterilized vegetable oil and assimilable oily solutions, non-caustic, of crystallizable essences, which I published in 1884: eucalyptol, menthol, thymol, geraniol, etc., twenty per cent., paraldehyde, camphor, phenol, iodine, apiol, etc., by solution in an essence. I have demonstrated the harmlessness of creosote-guaiacol and of non-assimilable vaseline.

In 1893 I published the oily injection of phosphorus, from five to fifteen milligrammes. This terrible poison has become the most powerful reparative drug for cerebro-medullary and nervous lesions, and affections of the intellect caused by dephosphoration of the brain.

In 1884 I published the treatment of phthisis by eucalyptol, arseniate

of strychnine and sparteine, phenol and phosphate of iron. I have obtained numerous definitive cures, many dating from five, seven and nine years, demonstrated by the reparation of hippocratism of the nails, the cicatrization of cavities, and by the absolute destruction of tubercle bacilli, and I can produce medical and microscopical reports which are indisputable.

Hypodermic therapeutics suffices to-day for all. This method, addressed to the central circulation, without leaving the remedies to the chance of digestion, is all-powerful in simple dyscrasias of the blood, and for infectious dyscrasias of internal or external origin. It prevents or aborts them often, it cures more quickly and better than any other, and prevents their degenerative consequences. Preventive antiseptic injection is useful in all morbid conditions, and is never hurtful. In no case does this method of medication, when applied by an expert, have hurtful consequences, near or far.

Conclusion.—Direct therapeutics by the central circulation, transfusion, injection, infusion by means of definite substances, powderable, assimilable and aseptic, will soon be the only method worthy of *savants* and of the practice of physicians who endeavour, before all, to cure and prevent without hurting.

ELEVENTH INTERNATIONAL MEDICAL CONGRESS IN ROME.

SECTION OF OTOLOGY.

(Continued.)

CONCLUSIONS derived from One Hundred and Twenty Cases of MASTOIDITIS observed and treated at the CLINICAL HOSPITAL OF NAPLES from 1883 up to the month of February, 1894.

By Prof. VINCENZO COZZOLINO.

1. The total number of cases of mastoiditis observed from 1883 to the month of February, 1894, was one hundred and twenty.

2. The author's triple classification: first class—endo-mastoiditis treated by perforation of the mastoid, or by the enlargement of osteo-cutaneous fistulæ; second class—the same treated by Wilde's incision and antiseptics of the auricular cavities; third class—the same treated by antiseptics of the auditory meatus, the tympanic, the mastoid antrum, &c.

3. Relation of mastoiditis to suppuration of the tympanum. Cases of suppuration observed from 1883 to 1894, two thousand and ten; mastoiditis during the same period, one hundred and twenty—showing six per cent.

Relation of mastoiditis to the age and the class :

	1ST CLASS.	2ND CLASS.	3RD CLASS.
From 5 months to 10 years	49 (61·8 %)	6 (20 %)	—
„ 10 years to 20 years.....	10 (12·5 %)	2 (6·6 %)	—
„ 20 „ 30 „	6 (7·5 %)	6 (20 %)	3 (30 %)
„ 30 „ 40 „	8 (10 %)	9 (30 %)	6 (60 %)
„ 40 „ 50 „	3 (3·7 %)	5 (16·6 %)	1 (10 %)
„ 50 „ 60 „	2 (2·5 %)	1 (3·3 %)	—
„ 60 „ 70 „	2 (2·5 %)	—	—
„ 70 „ 80 „	—	1 (3·3 %)	—
	80	30	10

5. Relation to sex :

	1ST CATEGORY.	2ND CATEGORY.	3RD CATEGORY.
	Relation.	Relation.	Relation.
Men	60 { 33 women	20 { 50 women	7 { 47 women
Women ...	20 { about 100 men	10 { about 100 men	— { about 100 men

6. Relation between the right and the left ear. In general, up to the age of ten years there is no remarkable difference between the right and the left ear in regard to the greater or less tendency to be affected with suppuration in the tympanum, or with mastoiditis in its various forms. On the other hand, the tendency becomes greater, as age advances, for the left ear to be affected rather than the right. This statistical point ought, without doubt, to be considered in relation to the observation which has lately been made in rhinology that the left cavity is more frequently affected than the right, and that, in case of bilateral lesions, it is nearly always more severely affected, on account of the diminution of calibre, owing to sclerosis of the septum being so easily produced on the left side, as well as the greater frequency of anomalies on the left side of the septum—crests and spurs (hyperostosis, hyperchondrosis).

	1ST CATEGORY.	2ND CATEGORY.	3RD CATEGORY.
7. Mastoiditis after suppuration	70	29	7
„ „ influenza ...	6	—	1
„ „ tuberculosis	2	—	—
„ „ scarlatina ...	2	1	—
„ „ furuncles ...	—	—	2
	80	30	10

8. Results as regards life in cases of mastoiditis. First category eighty cases; nine deaths, 11·2 per cent. Second category thirty cases. Third category ten cases.

9. Clinical observation has afforded assurance that in order for the pyogenic phlagosis to extend from the atrium to the attic, or from the one or the other to the mastoid antrum, it is necessary that there should be a certain condition favourable to the blocking of the pus, leaving out of account the rare cases of endo-mastoiditis, of pyogenic phlagosis of the attic, or of the antrum of primary origin. I have constantly verified this fact since the first publication that I made upon mastoiditis. (*Re "Pharma Medica,"* 85.) At present I can reaffirm, and with still greater authority, the existence of this blocking as the essential predisposing cause which brings about secondary mastoiditis in suppurations of the middle ear, and of the auditory meatus. The case may be a simple inflammatory engorgement of the cutaneous and osseous layers of the meatus in the sub-acute form of pyogenic otitis, and of simple or polypoid granulations, or of multiple polypi or of necrosis in the chronic forms. Without any doubt, over and above the local or anatomical predisposition of this blockage to produce extension into the mastoid antrum we must recognize within fair limits the predisposition due to the nature of the soil, in order that the microbes may more easily invade superficially and deeply, as takes place, for instance, in the scrofulous, tuberculous, &c.

10. As results of mastoiditis there have been observed, in addition to necrosis and caries, hyper-osteitis or condensing osteitis of the external portion and rarefying osteitis of the walls. These results of mastoiditis were found in the eighty cases of the first category in the following relations :—

Caries of the external wall	71
" " anterior wall	2
" " anterior cranial surface (Bezold's)	4
" " anterior cranial wall corresponding to the sigmoid groove for the lateral sinus	3
	<hr/>
	80
Hyperostoses	0
Rarefying osteitis or atrophy of the walls (criticized in the case of cholesteatoma of the mastoid antrum, and in accumulations of pus dating from several years).....	0
Cholesteatoma.....	0
Disease of the petrous bone	0
Caries of the osseous cushion of the Fallopiian canal...	0
Partial extrusion of the cochlea	0
Caries of the carotid canal	0

11. Effects produced upon the lymphatic glands of the lateral region of the neck found in suppuration, especially in cases of little children, while in adults we find superficial or deep phlegmons, caused specially by caries of the internal portion of the mastoid process described by Bezold.

Effects produced by mastoiditis upon the intra-cranial organs. These correspond precisely to the nine cases of death which occurred among the eighty cases of endo-mastoiditis. In two of the nine cases the diagnosis was made of death from septic thrombo-phlebitis. In two from abscess of the inter-cerebral lobe, in which cases were observed verbal aphasia (in general it is the temporo-sphenoidal lobe which is affected); in another resulting from thrombo-phlebitis of the ophthalmic vein by diffusion of the thrombo-phlebitis to the cavernous sinus, with this peculiarity, that the thrombus of the ophthalmic vein existed on the side opposite to the affected ear, a peculiarity which has been explained by the oculist De Vincenzi as a consequence of the anomaly of the ophthalmic vein, which occasionally opens into the cavernous sinus of the opposite side.

Embolie Extra-Cranial Results of Mastoiditis.—Operations had to be practised in two cases of pyæmic arthritis, which recovered, and one other case of embolic pulmonary pyæmia.

General pyogenic infection in accumulations of pus in the mastoid cavity, and septo-pyæmic infection in mastoiditis, with thrombo-phlebitis.

By means of bacteriological researches in the primary endo-mastoiditis caused by influenza there were found, in addition to the staphylococcus, the pneumococcus. In the chronic forms the staphylococcus and streptococcus were the only important microbes.

12. The remedy which has given excellent results as an antiseptic and antipyogenic is microcidine, five or six per cent., but chloride of iodine has produced also good results as an antiseptic in chronic forms with granulations. In osteitis, with its results, especially to destroy hypertrophied mucous tissue with granulations.

13. The precise indication for incising the external wall, the anterior wall of the mastoid, as well as that for the suppression of its threatening, is given for each particular case.

14. Lastly, in these eighty cases perforation or trepaning of the mastoid through an intact external osseous wall was practised twenty times, with two deaths. The two patients suffering from intra-mastoid cholesteatoma were both cured, the one by the method of Kuster, and the other by the old method of perforation of the mastoid antrum.

15. Ages of the patients who underwent the operation of perforation of the petrous, antrum and of the mastoid through an intact osseous wall:—

From 1 to 10 years	6
" 10 " 20 "	5
" 20 " 30 "	4
" 30 " 40 "	4
" 40 " 50 "	2
" 50 " 60 "	1

CONCLUSIONS upon OTO-NEURASTHENIA, whether Primary or Secondary and Associated, and on NEURASTHENIA due to Diseases of the EAR and to Diseases of the RHINO-PHARYNX.

By Prof. COZZOLINO.

First : There is a clinical form *sui generis* of essential oto-neurasthenia pure, and also ear disease accompanied by neurasthenic symptoms, the associated form. The first belongs exclusively to the labyrinthine expansion of the auditory nerve, and perhaps of its trunk and cerebral origins. Both are of a vaso-motor nature, which gives rise to labyrinthine excitation.

Second : The neurasthenic syndroma of the essential form, which bears solely upon the internal and intra-cranial sphere, is often bilateral ; in the associated form it is unilateral—that is to say, it does not wander away from the ear affected by the troubles, or of the most affected in the equilibrium of the tension of the auricular spheres, hypertonos. The collection of symptoms varies more or less according to the general conditions, especially in the essential form. In the associated form it is chiefly contingent on the increase of the tension which the middle sphere exercises upon the internal one.

Third : In the collection of symptoms in essential oto-neurasthenia, instead of diminution of the auditory power, we find more often hyperacusis, which increases the electric excitability of the acoustic nerve, comparable to nervous asthenopia, with which it may either coexist or alternate. The subjective entotic symptoms—various noises and vertigo in its different forms, with variable intensity, from the vertiginous aura up to vertigo simulating an apoplectic attack—are paramount in this form.

Fourth : These symptoms have for their characteristic that they do not improve under any local treatment in the essential form ; that they improve very little in the associated form, whereas they yield, although in a somewhat transient way, to the general treatment that one prescribes to neurasthenic subjects. Thus it appears that these symptoms are never isolated, but always accompanied by other local neurasthenic phenomena, or by stigmata on the other organs, such as hyperasthesia of the scalp, cerebro-spinal irritability, painful sensations *en casque*. The neurasthenic symptoms are aggravated by any excess of brain or psychic disturbance.

Fifth : The auricular neurasthenic symptoms attain the greatest development in the cranial form of cerebro-cardiac neurasthenia.

Sixth : In general when in any individual the hearing power is normal or nearly so, but he complains of considerable entotic disturbance, it is necessary to examine the state of the cerebro-spinal system to make out the part that this plays in causing want of muscular and vascular tone in the inter-auricular structures. I say also muscular tone, because I think that the tensor tympani and the stapædes, as well as all the other muscles in cerebral neurasthenia, lose their tenacity and their proper contractility, and, consequently, that the subjective labyrinthine

troubles can also be referred from the pathogenetic point of view to the cavity of the tympanum in essential oto-neurasthenia.

Seventh : Auricular vertigos pure or mechanical are those of which the symptoms indicate the compression of the fenestra ovalis or of the fenestra rotunda, but these vertigos can further be reproduced experimentally in a severe form, and most complex, because of their consequences on the respiration, etc. ; fortunately they are very rare. These are the vertigos from decompression.

Eighth : Auricular vertigo may often be confounded with vertigo proper to neurasthenia (which sometimes manifests itself all of a sudden), because even in this last phenomenon one may remark the entotic subjective symptoms. They are often aggravated by the fact that the vertigo *ab aure lasa*, like every other reflex auricular symptom which has reference to the cerebro-spinal or the sympathetic symptoms, ordinarily only presents itself in individuals who are neurasthenic or nearly neurasthenic, whose state is called by others nervosism or emotivity. I do not accept without restriction (demanded by clinical experience) the opinion that vertigo is exclusively a psychical stigma, to add to the list of those who characterize mental degeneration, agorophobia, mountain sickness, claustrophobia, which are met with in neurasthenic persons.

Ninth : It is precisely these varieties of forms and of intensity which prevent one from confounding neurasthenic vertigo with auricular vertigo which passes from simple confusion to severe vertigo with oscillation of the ground and sensation of falling. In neurasthenic vertigo the patient, it is true, thinks he is falling, but he does not fall as happens in auricular vertigo [Ménière's symptom autology]. In this latter the patient experiences the horrible sensation which would be caused by the earth opening under his feet and swallowing him up like a trap on the stage of a theatre.

Tenth : The illusions or hallucinations of the sense of hearing produced by the subjective noises are only possible in neurasthenic individuals, and especially in the subjects of psychical degeneration, as well as all the psychical troubles having reference to the sense of hearing which are caused by sudden and unexpected noises.

Eleventh : The complex of auricular neurasthenic syndroma may be found conjoined with that of auricular hysteria, and may thus present the phenomenon of oto-hystero-neurasthenia, in the same way as oto-traumoneurasthenia, which it is necessary to bear in mind in medico-legal investigations. The most striking character of these associated forms is their tenacity and their gravity, which is due to their persistence.

Twelfth : We have, in addition to hemi-neurasthenia described by Beard, oto-hemi-neurasthenia, in which auricular and other noises may be limited exclusively to one ear without the existence of any material lesion of the auditory apparatus.

Thirteenth : The gravity and the greatest trouble caused by secondary oto-neurasthenia are in direct relation to the clinical form of neurasthenia, with which it is associated, especially in cerebral and cardiac psychical affections. In the first, the oto-neurasthenic symptoms accompany head-

aches known under the name of pain *en casque*, a stigma which is absent as a rule in the spinal or gastro-intestinal and genital forms.

Fourteenth : It is important to distinguish carefully oto-neurasthenia in its different forms from the point of view of treatment, and especially of prognosis and diagnosis, above all in the general interest of the patients, and this in order to prevent them from lapsing into the period of intellectual and psychical aberration.

Fifteenth : Finally, it is necessary to admit clinically certain forms of general neurasthenia, with secondary cerebral characteristics, due properly to diseases of the ear and chronic diseases of the rhino-pharynx ; also forms of rhino-pharyngopathy associated with general neurasthenia, which are characterized by this—that the complaints and the pains described by the patients have no relation to the local disease. These neurasthenic indications are manifested by the perversion of common sensibility, of sensibility to pain, and of mobility, specially in the region of the pharynx and the soft palate.

Dr. FICARO wished to know from Dr. Cozzolino if there was any diminution of hearing in neurasthenic vertigo.

ON SOME EXPERIMENTS IN MYRINGOGRAPHY.

By Prof. DE ROSSI.

Experiments on myringography carried out with a particular form of apparatus tended to demonstrate the following points :—

First : That it is possible to transmit at the same time without sensible loss of energy the movement of a vibrating tuning-fork to two natural membranes of equal size with the membrana tympani of the human being by making use of a column of liquid.

Second : That these movements of the membranes can be inscribed on a registering cylinder.

Third : That the amplitude of the movements of one membrane is in direct relation to the mobility of the analogous membrane. That it is possible to make use of myringography to ascertain the movements of the membrana tympani and of the ossicles, as well in the normal as in the pathological condition.

Prof. POLITZER thought he expressed the feelings of the section in offering thanks to Prof. de Rossi for his interesting communication. He was of opinion that the ingenious apparatus designed by the professor would be the foundation of new investigations as much for the physiology as for the pathology of the ear, and he hoped that for practical purposes the apparatus would later be somewhat simplified.

Dr. GELLÉ complimented Prof. de Rossi upon these delicate and interesting experiments. Like him he had observed in his studies on the labyrinth that any pressure added to one of the two membranes of the apparatus had its echo on the other one. The result of this was that the control required from the witnessing membrane, if the expression may be used, is not absolutely exact, but the tracings that Prof. de Rossi has

shown us permit of the best promise that in future the employment of this method of exploration as regards the state of vibratility of the membrana tympani will be of the greatest use.

Prof. GRAZZI asked Prof. de Rossi what means he adopted to insulate his apparatus in such a way that the delicate levers which ought to reproduce the sonorous vibrations were not disturbed by other vibrations which might be communicated to the apparatus from the surrounding air, and from the solids on which the apparatus itself was placed.

Dr. GELLÉ said that one of the difficulties in the construction of this apparatus would certainly be to prevent the formation of nodes and inter-nodes in correspondence with the pitch of the tuning-fork employed, and which could be such as to alter materially the transmission and the results of the experiments.

ON THE EXTRACTION OF THE AUDITORY OSSICLES.

By Dr. LUDEWIG (Hamburg).

The diagnosis of caries of the hammer and anvil is in many cases uncertain. Even granulations which break through the membrana flaccida in front of or behind the processus brevis are no certain sign of caries of the hammer or of the incus. A more certain sign of caries of the incus is the destruction of the drum in the upper posterior quadrant. In the operation it is necessary when possible, in the first place, to allow to remain the union of the end of the handle of the malleus with the margin of the bone until the tendon of the tensor is cut through, and the joint between the incus and stapes is severed, as otherwise the free swinging handle of the malleus is easily moved out of place, and its snaring is rendered difficult. With a view to stopping the hæmorrhage, styptics such as alum solution are to be avoided, because they make a mess of the field of operation. On the other hand, it is recommended before the beginning of the operation to practise a subcutaneous injection of secale cornutum in front of the tragus and behind the auricle. Ludewig thinks that hypodermic medication will find a place for itself in otology, and that it will show itself capable of influencing processes in the middle ear. Furuncles and diffuse inflammatory swellings in the meatus are in all cases influenced or even cut short by the subcutaneous injection of a three per cent. solution of carbolic acid. In extracting the incus it is necessary to direct attention to a process of bone, "promontorium," which is found over the entrance to the antrum. Here the incus hook is apt to catch when it is too long.

In his recent fifty cases, carried out in Hamburg, Ludewig found in none any fatality or injurious complication; no fever, no facial paralysis, no vertigo worth mentioning, and no damage to the hearing.

The incus was found carious in eighty-five per cent. The indication for extraction of the hammer and incus is to be carried further than at present. When a chronic middle-ear suppuration continues, in spite of

treatment lasting over a month by means of Schwartz's copious syringing through the catheter, and the ordinary treatment through the meatus, the next step is to carry out the extraction of the hammer and incus through the meatus and quite independent of whether caries of these bones has been made out with certainty or not.

Prof. POLITZER recommended, instead of Dr. Ludewig's expression "promontorium," the term "spina tegminis." Regarding the indications for the operation, he remarked that the extraction of the hammer and incus is only practised by him if the greater portion of the drumhead is destroyed, and the hammer, therefore, is of no value for the function of hearing, and also when there is cholesteatoma in the attic. In perforation of the membrane of Shrapnell, on the other hand, when the suppuration is limited to the attic and the hearing power is nearly normal, the hearing becomes diminished by extraction of the ossicles, and in such cases operative interference ought to be limited to opening the outer attic, and only after this treatment has proved ineffectual should extraction of the ossicles be practised.

Prof. AVOLEDO asked Dr. Ludewig how many times in the extraction of the incus he had injured the chorda tympani, and what were the anatomical and pathological conditions of the drum and of the ossicles which led him to give up the idea of extraction through the meatus and to carry out the operation of Stacke.

Dr. LUDEWIG replied to Prof. Politzer that in his fifty cases in Hamburg he had not once seen any diminution of the hearing power produced by the operation of extraction of the malleus and incus. Often distinct improvement in hearing had occurred, such that before the operation the patient could only hear whispered numbers close to his ear, and afterwards heard them at six mètres. In answer to Prof. Avoledo, he had not taken any notice of the chorda tympani in his operations, as he thought it was impossible to guard against injuring it. In most cases the patients did not notice any symptoms due to lesion of the chorda.

Prof. POLITZER remarked that, in cases where extreme deafness was present, there was observed an improvement in hearing after extraction of the ossicles, but that, on the other hand, when hearing was nearly normal, the operation diminished it very much.

Dr. REINHARDT (Duisburg) said that the frequency of the occurrence of cholesteatoma of the antrum, or at least of the attic in caries of the ossicles (perforation of the membrane of Shrapnell), is so great that cure of the middle-ear suppuration by simple extraction of the two outer ossicles becomes impossible, and the opening of the antrum according to Stacke's method is necessary. In thirty-two cases of malleus and incus extraction, about which he had given a report in 1891 at Halle, at the meeting of the German Naturalists, he saw recovery in fifty per cent. In these there was simply caries, but the other cases were complicated with a small—sometimes only a lentil-sized—cholesteatoma in the antrum. He asked the speaker in how many cases of his fifty extractions he had found a complication with steatoma.

Dr. LUDEWIG replied to Dr. Reinhardt that he had only spoken of

cases in which caries of the ossicles has been either diagnosed or assumed. In none of these was there a cholesteatoma.

Dr. REINHARDT replied that it was often very difficult to diagnose before the operation whether or not there was a cholesteatoma in the antrum or attic.

ON TWO CURED CASES OF TOTAL DEAFNESS.

By Dr. SIGISMUND SZENES (Budapest).

Gentlemen,—I take the liberty of giving you a short account of two cured cases in order to demonstrate to you, on the one hand, a somewhat unusual course, and, on the other hand, to bring forward some reflections of my own.

The first case is that of a girl of eight years of age, who came under my treatment on the 9th of June, 1893. This child had, two weeks previously, pains in both ears, accompanied with a rise of temperature to 99°. Soon afterwards there came on bilateral suppuration, and under the special treatment of a colleague both the fever and the pain were overcome, but the hearing power got worse from day to day. Under these circumstances the parents of the child consulted me in order to have the benefit of a second opinion. On examination with the mirror I found both ear drums soft, and here and there slightly hyperæmic. The manubrium and short process were scarcely to be distinguished, and there was no trace of light cone. I found no trace of perforation of the drum-head in spite of the most careful search. Investigation of the hearing power showed that it was very considerably lowered on both sides, so that the child could only hear the watch in contact with the ear, and loud speaking only close to it. On the next visit the child, who was quite intelligent, was unable to localize the sound of the tuning-fork in either of her ears. Using the air douche produced almost normal hearing, but the appearance of the drum-head remained unchanged. The mother remarked to me that this same form of inflation had been daily practised by my colleague, and had always had the same effect in producing an improvement of the hearing, but that this improvement only lasted for four hours, and it always came back to the same condition in which it was before the first investigation. As the results of inflation seemed to promise a favourable issue, I determined to carry out expectant treatment, and got the child to come daily to me to have inflation. In this way I went on for sixteen days, but the condition always got worse daily, as the improvement lasted every day a shorter and shorter time, and at the last the hearing after the inflation scarcely remained good for two minutes, so that the child would answer two questions quite well, but a third question could only be communicated by means of writing.

The investigation of the hearing power gave the following result : Watch on the ear = 0; even by bone conduction it was not heard. Neither high nor low tuning-forks were perceived by either air conduction or bone conduction.

I placed the tuning-fork in the last case always on the skull at the root of the nose, on the upper jaw, and lastly on the mastoid process, but in none of these places was the tone perceived. The intelligent child thought that when I placed the low tuning-fork on the bones she felt something, but did not hear anything.

I attempted now, by means of hearing tubes, to speak into her ear, whereupon the child heard, and I also on this account considered the case not quite hopeless. Lastly, I may only add that the child complained of a continuous dull humming noise in both ears. At this stage I determined to adopt the pilocarpin method of treatment, especially as the general condition of the child did not contra-indicate it. I performed the first injection myself; the remaining ones were carried out by the family doctor. One centigramme was subcutaneously injected each morning upon an empty stomach. Thereupon there came on a profuse secretion of saliva and of sweat, and the child remained from an hour and a half to two hours afterwards still lying in bed, but later got up to breakfast, and then in the afternoon came to my consulting rooms and had the air douche. On the 25th, 26th, 27th, and 28th the child underwent this treatment, and on the 29th had simply the air douche, because the family doctor omitted the injection. On the 30th she got the fifth injection, and on this day the hearing power returned. It is interesting that the child had had an anosmia. On the 1st and 2nd of July the pilocarpin injections were omitted, and the child had only the air douche. On the 3rd a pilocarpin injection, and in the afternoon an air douche. At this date the hearing power had already improved so much that the child could hear words spoken loudly in the ear without the hearing trumpet. Lastly, on the 4th, she received the seventh and final injection, after which she felt a cracking in both ears, and stated that the hearing power had returned. Since then the child was only seen from time to time, and in spite of the most careful observation I could find no defect in the hearing.

The question arises as to what was the nature of the process. The commemorative circumstances made one decide that it was acute bilateral suppurative median otitis, the suppuration having lasted two days, and as I saw the child two weeks later, that idea remains only a supposition. The whole course of the affection gave me the idea that I had to deal with an influenzal affection, an idea which was fully confirmed by the existence of the anosmia, as I frequently found changes in the olfactory regions during the influenza epidemic of the years 1889 and 1890. In the nose and naso-pharynx, however, I could find no morbid change. The appearance of the membrana tympani on both sides on the first inspection was such as would remain after a previous inflammation of the drum, but as I found no trace of perforation it was difficult to decide upon the purulent otitis with certainty. There were only uncertain conclusions to be drawn as to the site of the process from the changes in the hearing function. A lowering of the auditory power presents itself in the most varying shades in suppuration in the middle ear, but as the hearing power became worse and worse from day to day before my eyes, and as ultimately the bone conduction disappeared, it is scarcely possible to

think otherwise than that along with the tympanum the labyrinth was also affected. This is particularly the reason why I did not speak of a special form of disease, and only committed myself to the descriptive symptomatic diagnosis deafness.

It is quite otherwise with regard to the therapeutics. Here I looked upon the *post hoc ergo propter hoc* as incontrovertible—that is to say, as regards the pilocarpin—because, if we had had to deal with a deafness which tended to get well without anything further than the air douche treatment, the duration of over four weeks would have been a very long one for which to use nothing but treatment by the air douche. This, however, was not the case, and the hearing got from day to day worse and worse, until the adoption of the pilocarpin treatment led to the recovery of the normal hearing power. I explained the action of pilocarpin in the same way as has been done by Schubert—that is to say, as an active resolvent which brought about a retrocession of an accompanying hyperæmia, or exudation in the labyrinth, which had come on along with the tympanic affection. Whatever it may be, I thought that the case, in its whole course, was so interesting that it was worth while to give it publicity.

As a contrast to this, I now place before you the second case, in which there was a return of the hearing power, but without any practical therapeutical measures, and I bring it forward only on this ground—because it is very easy, in any eventual course of treatment, to arrive at erroneous conclusions with regard to the benefits derived from the therapeutical agents.

The case was one of a gentleman, aged sixty years, who, as part of his business, had received a musical training, and I was called to him on the 9th December, 1892. The patient had, twenty years previously, suffered from deafness for a few weeks, for which he was treated by means of the catheter with good result, but he always heard with the right ear rather worse than with the left, but not to such an extent as to interfere with his business as a singer, so that he had never been treated for it. At present, however, the case was different. The physician in attendance stated that he suffered from atheroma with emphysema of the lung, as the result of which there was a slight hypertrophy of the right ventricle of the heart. The patient had, on account of his emphysematous condition, bronchial catarrh of a few days' duration, for which he remained in the house, and he observed on waking at four o'clock in the morning that he had become suddenly deaf in the left ear, having heard with it perfectly well the night before. He therefore sent for his family doctor, who called me into consultation.

I found the following condition: The patient, who in spite of his sudden deafness was very excited, lay quiet in bed, as on the slightest movement of the head he became affected with vertigo, which got very much worse when he sat up. We got him out of bed and had to lead him very carefully, because he reeled about and complained of confusion in the head and a tendency to sickness. There was a negative result given by the inspection of the drum, as with the exception of a small semilunar calcareous deposit on the posterior half of the left membrane, and

a yellow thickening near the centre of the right one, there was nothing further to be seen that could suggest an acute or a subacute morbid process. So far as the testing of the hearing could be carried out under the circumstances there was found on the left side a very high degree of deafness, as he could only hear words spoken very loudly in the ear. For the A tuning-fork ear conduction was = 0, and the bone conduction from the upper jaw and mastoid process was preserved, but not from the skull.

On account of his advanced age I attributed no very great importance to the imperfection of bone conduction, and I did not pay much attention to the right ear, in which there were the remains of a chronic middle-ear sclerosis. On catheterization the air entered both tubes, but produced no change as regards the hearing power. As iodide of potassium caused the patient severe coryza, and pilocarpin was contra-indicated on account of the pathological changes in the heart, we ordered the patient absolute rest, cold applications to the head every half-hour, and lemonade to check the nausea. In the course of the day I saw the patient, whose condition remained absolutely unchanged, but the next afternoon, that is, scarcely thirty-six hours after this apoplecticiform attack, the hearing power returned, but the patient did not lose the vertigo and the other subjective manifestations till ten days later.

After six months the patient came to see me, and I found the hearing power weakened on both sides, and in the right ear to a very considerable extent, as he scarcely heard the watch at one centimètre, while on the left side he heard it at one hundred and twenty centimètres. In addition on the right side he could not hear a deep-toned tuning-fork by air conduction, and by means of Weber's test the fork was localized in the left ear, and Rinne was positive on the left side only. As the patient, however, was not prevented from taking part in his professional and social duties by his deafness, he underwent no treatment.

The question now arises how we are to explain the sudden occurrence of deafness on the left side, and its disappearance after thirty-six hours. The most plausible account would be an embolism or thrombus, and this all the more because there was every opportunity for that, owing to the atheromatous changes. It might be equally well explained by the occurrence of a hæmorrhage which, after thirty-six hours, became so much better that the hearing power returned, but complete recovery, with disappearance of vertigo and nausea, only after several days. In whatever way the process is explained, this, however, is certain, that in such a case as this the adoption of pilocarpin treatment would not have prevented a return of hearing power, and might very likely have led to the erroneous idea that the recovery was due to the *post hoc ergo propter hoc*. There would have been attributed to the pilocarpin treatment the property of having produced recovery of hearing after the performance of two injections.

I bring these two cases forward in order to show how easily the eventual operation of a remedy without very precise indications can come into discredit.

Prof. GRADENIGO asked Dr. Szenes if the first case was not one of infantile hysteria and the second one of acquired syphilis?

Prof. AVOLEDO thinks the injections of pilocarpin are more useful in the changes following chronic purulent median otitis than in the slow forms of catarrh of the tympanum and in the hyperplastic forms.

Dr. SZENES : To Prof. Gradenigo's question I can only answer "No." I thought of puerile hysteria in the first instance, but I have had enough opportunity to determine that the pilocarpin had really therapeutical and not a "suggestive" action. In the second case, I thought at once of syphilis, as the whole picture was only of Ménière's process, in which, in the first instance, we ought always to think of syphilis, but in this case it was quite excluded. In reply to Dr. Avoledo, I must state that I have used pilocarpin in a fair number of cases without any result. In middle-ear sclerosis I found at the very most a slight diminution of the subjective noises, but that I considered only suggested. Founding upon the new indication given by Schubert, I have taken to pilocarpin only as an *ultimum refugium*, and my firm opinion is that only upon the grounds given by him can any favourable result be ascribed to pilocarpin.

ON THE INFLUENCE OF MALARIA ON DISEASES OF THE EAR.

By Dr. GARZIA.

During the last two years I have had the opportunity of observing and treating twenty-four patients affected with various forms of diseases of the ear after having suffered from malarial fever. Of these nine cases occurred in railway servants, sent to me by the courtesy of Dr. De Amico, of Naples, and nearly all belonging to the travelling branch of the service; and in all the disease was present on both sides. In the cases of acute affection the febrile attacks came on with pain in the ear, which ceased with the lowering of the fever, leaving the patient deaf during the period of apyrexia, as I have had the opportunity of confirming more than once. After having administered quinine the fever ceased and along with the fever the pain and the anasthenia of the acoustic nerve. In cases of external and median otitis arising from malaria, in addition to the usual local remedies, I made use of quinine, having always obtained results from it; but I do not give it in large doses. The laity have the idea that quinine is the cause of many diseases of the ear, and hence they feel a repugnance to taking this drug. That is true up to a certain point. It is known that the salts of quinine taken in large doses produce noises in the ear and deafness for a certain time, but this only lasts for a short period, and the deafness and the noises diminish little by little until at length they disappear completely. I have never had to reproach myself for having administered at any time large doses of quinine, as I have not exceeded the quantity of two grammes. Many others who have discussed this question think, and I agree with them, that it is not the quinine given in large doses which is the cause of the deafness and of the noises, but that these are the result of the influence of the malaria. The action of quinine is always transitory, and when, after having administered such a

remedy, there remains any permanent deafness one ought to think rather of the local action of the malaria upon the apparatus of the acoustic nerve, and in confirmation of this we see the advantages arising from the use of quinine in certain inflammatory diseases of the labyrinth and in auricular vertigo. In my observations I have been able to convince myself that malaria produces congestion and inflammation in the ear, which penetrate as far as the nervous apparatus if the patient remains for a long time in a malarious district. I am sure that this disease is curable by means of the specific remedies given internally and with disinfectants locally applied, when the treatment is given promptly so as to exorcise the lesions already produced.

THE USE OF THE CURETTE IN OPERATIONS ON THE MASTOID.

By Dr. CLARENCE J. BLAKE.

In cases of chronic suppurative disease of the middle ear where mastoid disease has supervened as an acute complication, or where there is acute mastoiditis with evidence of suppuration, and especially where there is probability of disease of the inner mastoid wall, the curette, after the opening of the mastoid cells by removal of the cortex by means of the drill and chisel, or the chisel alone, is a valuable instrument. The course which I have usually pursued in this class of mastoid operations has been to make a small opening in the mastoid with the drill, then to enlarge this with the chisel and immediately to use curettes of different sizes, until all of the diseased tissue is removed, and the interior surface of the mastoid cavity is quite smooth, and a free opening has been made into the antrum mastoideum: the operative cavity is then allowed to fill with blood, and after the formation of the clot the wound is douched with hot sterilized water, and the wound closed without sutures, and dry baked dressings are applied. The operation on the mastoid is always preceded by a large incision of the membrana tympani and paring of any intra-tympanic bands which may be likely to interfere with drainage from the middle ear. The best result obtained in this class of cases has been a complete healing in five days as the outcome of the substitution of a sterile clot fitting the excavated mastoid cavity in place of the diseased tissue removed. The curettes are made with a long tip and a rounded bowl, and can be safely used for removal of the inner wall of the mastoid, as the rounded bowl pushes the dura away and the work of the cutting is always outward. The handles of the curettes are marked on the side corresponding to the cutting edge of the curette.

Prof. POLITZER asked Dr. Blake if he had occasionally found a communication between the mastoid abscess and the mastoid antrum. He himself had only found it very rarely.

Dr. BLAKE confirmed Prof. Politzer's observation.

REMARKS on EXTRACTION of the STAPES in CHRONIC NON-SUPPURATIVE DISEASE of the MIDDLE EAR.

By Dr. CLARENCE J. BLAKE.

(Résumé of Conclusions.)

DR. BLAKE has already communicated twenty-two striking cases. Out of all these he was able in only one single instance to effect an improvement in the hearing power, and in this case the fixation of the stapes was not complete. In the remaining twenty-one cases there was no definite improvement, and some of them, on the contrary, underwent decided deterioration as regards both hearing power and tinnitus. In five cases vertigo came on as the result of the operation, and in two of these it still persists.

The author, therefore, finds himself unable to recommend removal of the stapes in cases of chronic non-suppurative inflammation of the middle ear, and on this account all the more because it involves a risk of danger to the labyrinth.

Prof. COZZOLINO : I say to-day what I have said before at the National Congress of Pavia, 1887, that is to say, that the surgery of the middle ear is from a point of view of hearing power very uncertain and transient in its results in primary adhesive or hyperplastic processes in the tympanum, but the results are certain and lasting in sclerosis secondary to purulent inflammation of the tympanum. Therefore, in the former case, the question of operating or not operating is only of diagnostic value, but in the latter it is proper always to operate with a view to cure, that is to say, as far as function is concerned, as the hearing is improved markedly and lastingly, as also the subjective disturbances, noises, vertigo, etc.

Prof. DE ROSSI asked Dr. Blake what he understood by mobilization of the stapes, and in what way he performed the operation.

Dr. COLLADON : Dr. Blake's communication has all the greater importance that it seems to settle in a definitive manner the question of the extraction of the stapes in chronic non-suppurative affections of the middle ear : in fact, in the immense majority (sixteen) of the twenty-two cases cited by him, not only were the symptoms in no respect improved, but, on the contrary, they were aggravated, and became complicated with vertigo. The first indication is to do no harm. The operative procedure with which we have been concerned ought to be confined to suppurative affections of the middle ear.

EXPLORATORY TYMPANOTOMY.

By Dr. CLARENCE J. BLAKE.

This form of operation without general anaesthesia takes advantage of the insensitive parts of the membrana tympani, which are found to be progressively sensitive from below upward, and in the incision made opposite the round window causes in the majority of cases but little pain,

and permits the application of a sterilized solution of cocaine to the cut edges, and a usually painless continuance of the incision, which, as described in previous communications, forms a flap which falls outward and exposes the insensitive region of the incus and stapes.

Through this opening, tenotomy of the tensor tympani or stapedius and division of adhesions may be done painlessly, so long as the instrument is not allowed to touch the edges of the cut in the membrana tympani.

After the operation, the application of a paper dressing, moistened in sterilized water, serves to close the opening effectually, and the healing is so complete that the operation may be repeated at intervals, if it seems desirable for repetition of mobilization of the stapes or for other operations.

Prof. DE ROSSI: I wish to draw attention to the fact that it is now some years ago, namely in 1871, that I operated upon two patients with extreme deafness, and subsequent suppuration of the middle ear. It was before Kessel that I obtained very good results by mobilizing the stapes by means of disarticulation of the long process of the incus from the stapes. The following is my method of operation: I make a puncture in the centre of the membrane near the handle of the malleus. I lay aside the lancet-shaped needle and I introduce a blunt-pointed knife, with which I continue my incision the whole length of the handle, and I make a hinged flap which I draw outwards towards the meatus. I thus lay bare the articulation of the stapes with the long arm of the incus, and cut through the joint, dislocating afterwards the long branch of the incus. I cut through the adhesions round the incus if there are any, and return the flap to its place, and keep it in position with cotton wool dipped in boro-glycerine. Adhesion takes place very rapidly in two or three days.

Dr. GELLÉ was much struck with what resulted from the practice of the different speakers who had dealt with the question of mobilization of the stapes, *à propos* of the communication made by Dr. Blake. He showed that improvements had only been found in cases where the immobility of the stapes was consecutive to suppurative otitis, while all indicated the complete failure of this operation in cases of dry otitis, namely of sclerosis of the tympanic cavity.

THREE CASES OF EXTRACTION OF THE STAPES.

By Dr. PAUL GARNAULT, Paris.

Now that it is known, thanks above all to the experiments of Kessel and Botey, and contrary to the opinions formerly held, that the extraction of the stapes, when carried out with reasonable precautions, is an operation devoid of danger, it has been performed tentatively of late years by various operators.

The operation can be performed, first: In chronic hypertrophic otitis, with adhesions and contracted bands binding the branches of the stapes to the walls of the pelvis ovalis. Independently of these bands there ordinarily exists at the same time a modification of the annular ligament

of the stapes, which brings about a more or less marked compression of the labyrinth.

Secondly: In chronic purulent otitis, or rather in the cases where there exist disturbances of hearing consecutive to old chronic purulent otitis. In spite of the favourable results obtained by various authorities, including Jack and Blake, I continue to believe that it is only after cure of the suppuration that the stapes should be removed; generally the fenestra ovalis is covered by a mass of granulations, which renders it very difficult to distinguish when the incus is no longer articulated with the stapes, or when the head of that bone is no longer visible.

Thirdly: In sclerosis of the chain of bones accompanied by diminution of hearing and by tinnitus. The preservation of cranial perception (bone conduction) promises, or at least theoretically would lead us to hope for, a good result from the operation from the point of view of hearing. The subjective symptoms which seemed to indicate stapedectomy are notable diminution of hearing and tinnitus.

When these groups have not been influenced by ordinary conservative treatment, which ought to be carried out in the first two groups, although in the third one can say that every plan of treatment is illusory. In the first two groups one may try before extraction mobilization, or rather, perisynchotomy of the stapes, which may give good results, but in the too frequent cases where the peristapedial ligament has undergone profound modifications, when it exists with adhesions (osseous union) between the branches or the foot-plate of the stapes at the walls of the pelvis ovalis, and in all the cases of the third group, stapedectomy is clearly indicated. The mode of intervention consists in practising by means of pressure on the branches of the stapes movements intended to increase the elasticity of the annular ligament, and to diminish the labyrinthine compression. This seems to me absolutely illusory, and it is to this proceeding, in any case, that one ought to confine the term mobilization of the stapes. The three cases that I shall report briefly were operated on under chloroform; they present the three groups in which, according to my opinion, the operation can be tried.

First case: M. N., aged forty-three, operated on November 17th, 1893. Chronic hypertrophic median otitis, with adhesions of the membrane to the tympanum. The angle of the malleus was drawn up to an extreme degree and treated for a considerable time by intubation and insufflation of air. The right ear was by far the most affected.

Rinne's test was clearly negative, and bone conduction well preserved. The sound of the watch was hardly heard on contact. Whispered speech was heard at twenty-five centimetres. After the operation (the opening into the tympanum was made by means of the galvano-cautery) there came on vertigo and sickness, which disappeared completely at the end of four days. The hearing power, which disappeared altogether during the first few days after the operation, gradually improved. It remained stationary for two months. The watch was heard at seven centimetres, and whispered speech at seven centimetres, but the tinnitus disappeared completely and definitely from the eighth day onward.

Mr. L., aged seventeen. A case of old chronic purulent otitis of the

right ear. accompanied by diminution of hearing power and tinnitus, which had been treated for several years without success. The cure of the suppuration had been effected very rapidly after extraction of the malleus and incus, the last-named bone being extremely carious. At the moment of the operation of stapedectomy the watch was heard on contact, and the cranial perception for the tuning-fork was good. The stapes, of which the head was quite visible, was extracted by means of a forceps. At the moment of extraction there was lowering of the pulse and a little vertigo; on recovering from the anæsthetic there was no sickness, but complete deafness. The hearing power improved subsequently, but never became better than it was at the moment of the operation; on the other hand, tinnitus has disappeared completely.

Third case: Mr. M., aged fifty-four, old typical sclerosis. Audition for the watch by ear conduction *III*, as also for whispered speech. Rinne's test slightly negative, and the duration of cranial perception notably diminished. The tinnitus was very intense. The two ears presented somewhat similar conditions, but the tinnitus was much more pronounced in the right one. I determined to operate rather upon this. After the operation, performed on the 3rd of December, 1893, there were vertigo, nausea and intense tinnitus, but the tinnitus diminished gradually as if it meant to disappear entirely. The deafness was not improved to any extent.

The result of the observation of these cases is to show the harmlessness of the operation. It caused neither fever nor reaction; the patient was able to get up on the third day without any inconvenience, and when vertigo or nausea was produced these phenomena did not present anything like the intensity described by Bezold in the cases that he has reported. In the second place the tinnitus diminished notably in the three cases without, however, disappearing in the third one. The hearing power, after having diminished to an extreme degree, improved again in two of the cases. It would be premature to deduce definite indications for this operation from the small number of cases as yet published, or to judge of the results which it would give, and which assuredly will turn out to be very variable. It would be, I am sure, a hopeless illusion to suppose that the extraction of the ossicles of hearing, and in particular of the stapes in cases where these parts had become absolute obstructions to the transmission of sound to the labyrinth, can give results comparable to the operation for cataract, to which, however, it may be compared. The extreme enthusiasm of Jack has been compensated for by the reserve of Blake and Bezold, but the cases cited by Schwartz and myself are rather encouraging, even with regard to the hearing power, because, as far as concerns the tinnitus, the results that I have obtained seem to me sufficiently remarkable for me to recommend without hesitation the operation of stapedectomy when the tinnitus has attained a certain degree. In all cases the harmlessness of the operation permits of recommending a much more frequent recourse to it, which will enable us to arrive soon at a definite opinion as to its value. We have been hindered several times by the impossibility of seeing and reaching the fenestra ovalis, and are somewhat surprised that several others who have

frequently mobilized the bone made no allusion to this difficulty. It can, however, be easily overcome by a separation of the meatus, and a removal of that portion of the tympanic frame which conceals from view the fenestra ovalis and the stapes.

Prof. GRADENIGO observed that four months after the operation was not long enough time to form a judgment as to the results; in fact, after irritating intra-tympanic injections through the catheter he was accustomed to notice an improvement of the acuteness of hearing due to the swelling of the mucous membrane, and to a partial relaxation of the ankylosis. Now this same irritating effect is present in a greater degree after a cutting operation in the tympanum. This can simulate up to a certain point the slight improvement in audition which is observed in the first few days afterwards. It is to be noted, further, that in the cases described by Dr. GARNAUT it resulted that the auditory improvement was especially to be obtained by means of mobilization of the stapes in cases due to purulent otitis, and not in those of primary median sclerosis.

Dr. GARNAUT: I have observed these patients the whole time for several months, and as their state has varied very little, I think I am able to conclude that the results will be definitive. I do not think the amelioration obtained in the two cases is due to the excitation or to the irritation produced by the operation in the tympanum, because the immediate results have been bad, and it is only progressively and later on that the ear has returned to its definitive state.

Dr. COZZOLINO said that it was easy to interpret whether the improvement in audition was due to the irritation produced by the surgical interference, by irritating remedies introduced into the tympanum, or was the effect of the surgical operation in causing mobilization of the stapes. In the first and second case the improvement was slow in coming on, was transitory, and not very encouraging; in the third case the improvement in audition, when the clinical conditions permitted of it, was immediate, and was much more lasting, for months at least.

Dr. GELLÉ remarked how strongly the facts brought forward by Dr. Garnaut supported the reflections that he had made after Dr. Blake's communication—namely, that the amelioration was observed equally in cases of *fixation* of the stapes consecutive to suppurative otitis, while in the cases of sclerotic otitis there was total failure. *À propos* of this communication, he thought it right to mention, in addition to the irritation of the mucous membrane referred to by Prof. Gradenigo, the deeper action upon the nerve centres, and a dynamogenic action, such as takes place upon the untouched ear, which is often more benefited than the one which has been operated on.

Prof. DE ROSSI observed to Dr. Garnaut that in translating mentally from Italian into French he might have made a mistake—his observations dated from 1871.

Dr. CORRADO CORRADI observed that for some time past it has been admitted that intra-tympanic surgical treatment, especially for mobilization of the stapes, was more successful in those forms consequent upon suppuration than in those which were sclerotic from the commencement. In this latter the speaker in various mobilizations performed saw no

benefit, but rather the opposite. With regard to the belief that the improvement when it does occur from intra-tympanic operations can be attributed to an irritation, and not to the operative act itself directly, the speaker remarked that improvement in hearing was observed in consequence of irritation, as had been shown by Urbantschitsch, by passing bougies into the Eustachian tube; but such improvement by simple irritation quickly disappeared, while, on the contrary, the improvement consequent upon surgical treatment did not pass away as quickly, but sometimes later—that is, when the operative trauma was over, and then lasted sometimes for years.

Prof. POLITZER remarked that the duration of the period of observation in the cases of Dr. Garnault, which did not extend beyond four months, was too short for him to speak of a lasting result; it was necessary for him to have at least two years of observation in order to describe it as a favourable result.

Dr. MASINI said that in cases of sclerosis of the tympanum he had practised the mobilization of the stapes on many occasions, and was enthusiastic about it, but now after many observations he thought that the results were not lasting. He was convinced that it was very difficult to displace the stapes out of the fenestra ovalis without breaking the limbs.

Prof. DE ROSSI: Dr. Masini has done well to distinguish between the results obtained in mobilization of the stapes in cases of otitis media hyperplastica from those which are obtained in the sequelæ of otitis media purulenta. In this last the results obtained in my *clinique* are absolutely brilliant—I can also add lasting—because one of the first operated on by me has been seen again after about ten years, preserving the very considerable improvement in the hearing which was obtained after the operation.

THE BRITISH LARYNGOLOGICAL AND RHINOLOGICAL ASSOCIATION.

*The Seventeenth General Meeting was held on April 13th, 1894,
at 11, Chandos Street.*

The President, Dr. J. MACINTYRE, was in the Chair.

Nineteen Fellows and Ten Visitors attended.

The following gentlemen were balloted for and elected Fellows:—

ARTHUR HUTCHINSON, M.B.

GEORGE HERSCHELL, M.D.

HARRY CAMPBELL, M.D.

Mr. GEO. STOKER gave notice that he would introduce the following motion at the next General Meeting: “That the word ‘Otological’ be added to the title of the Association.”

The PRESIDENT also gave notice of the following motion: “That in addition to the Ordinary Meetings, special evenings be chosen for holding clinical meetings.”

Dr. W. MCNEILL WHISTLER showed a case of *Chronic Laryngeal Disease*.

He had brought this case before the Association at a former meeting, when he promised to report its further progress. In doing so now he asked that he might be allowed to repeat briefly the history. The patient is fifty-six years of age, and consulted him at the London Throat Hospital in April, 1887, complaining at the time of intense lancinating pain, intermittent in character, though frequently recurring, in the "lower part of the throat," as he described it. These attacks had been spasmodic in character, but for some little time before he came to Dr. Whistler there had been a more constant soreness in the laryngeal region, together with (at times) pain and spasm in swallowing. The man was also suffering at this time from sciatica. With the exception of occasional rheumatic attacks he said he had always enjoyed good health, and he looked a healthy and strong man. There was no history of syphilis, or any indication of any pulmonary disease. He had served many years as a policeman, but he had never had any blow or other injury to the neck.

He was first attacked with pain in the throat, which he described as neuralgic in character, as far back as 1875. This seizure was most sudden, and so severe that he had to be relieved from duty. This was the first time that he had ever noticed any trouble in the throat. He stated that the attack passed off quickly, and that from that time until 1881 he remained well, a period of six years. Then he went as an out-patient to Golden Square Hospital, owing to a relapse of the original symptoms. Under treatment by sedative inhalations and local applications to the larynx, he again obtained complete relief, which lasted until 1886, when he returned to that hospital. Judging by the patient's statement, the local signs and symptoms appeared then to have been very similar to those which existed when he came under Dr. Whistler's care, but he stated that the external swelling in the sub-hyoid region was at that time larger. He said that this was punctured, and that the laryngeal swelling was lanced, but with a negative result; no evidence of suppuration being obtained.

The signs which Dr. Whistler found were a slight surface congestion in the pharynx: a very marked redness, with swelling, on the under surface of the epiglottis, extending from the left side of the epiglottic cushion to the left ary-epiglottic fold, and upper part of the left ventricular band. The hyperæmia and the swelling were strikingly confined to the left side of the median line. There was some swelling over the left arytenoid, but no impaired movement of the crico-arytenoid articulation. There was no growth—that is to say actual outgrowth—or ulceration. Just above the upper border of the ala of the thyroid cartilage on the left side there was a limited area of thickening, appreciable on palpation, but not forming at that time any visible surface swelling.

Dr. Whistler had the opportunity of seeing the patient during an attack, while examining him at his first visit. The onset was abrupt, and he could best describe the symptoms as being those of acute cramp, accompanied by intense pain, radiating from the tongue to the lower part

of the pharynx and larynx and over the hyoid region. During the seizure, which lasted only a few minutes, the patient could not speak, and any movement of the tongue increased the pain. When the speech was regained, the voice remained hoarse for a short time, but there was never any dyspnoea, and the laryngeal signs could scarcely account for the severity of the symptoms. Dr. Whistler had some time before this seen a case in which the symptoms were nearly identical, coming on as suddenly, associated with lancinating pain on movement of the tongue, and extending over the same region. That patient had suffered from repeated acute attacks of gout, and Dr. Whistler was inclined, looking at the signs in the larynx, and considering the suddenness of the attacks, the sharpness of the pain while they lasted, and the equally rapid way in which they passed away, associated with the fact that the man was then suffering intensely from sciatica, to ascribe the laryngeal inflammation in the present case to rheumatic or gouty perichondritis. Arguing from this, he placed the patient upon alkalis and iodide of potassium, which gave him immediate relief. He subsequently took effervescing salicylate of lithia, and was soon free from all pain and spasm.

It was interesting to see that the throat symptoms and the sciatica yielded simultaneously to the treatment. The patient remained under observation for several months. The redness and swelling in the larynx persisted for some time, but with local applications, added to the general treatment, there was very little trace of these remaining when he ceased attending.

Dr. Whistler did not see him again until the spring of 1893. In the interval his throat had not troubled him. He came now with exactly the same symptoms as before, and the laryngoscopic appearances were much the same as those already described. He had for some time fallen off in his general health, he was very much weaker, and had lost over a stone in weight. The epiglottis on the left side was bound down so rigidly by the thickening of the left ary-epiglottic fold that it was difficult to get any clear view of the larynx, but on placing the mirror obliquely there was very evident swelling and thickening, with a nodulated surface extending from the epiglottis down into the ary-epiglottic fold. The movements of the vocal cords were not impaired, and they were normal in appearance. The left one was hidden anteriorly by the swollen ventricular band. The attacks of cramp were relieved by full doses of bromide of potassium; insufflations of morphia, with inhalations of benzoin, and of conium, were also used. From August last until November Dr. Whistler did not see the patient. During this time the infiltration in the larynx had become more marked, but did not extend beyond its former limit. The swelling in the left sub-hyoid region had also increased. It was distinctly circumscribed—round and hard. There was no sense of fluctuation. It was soon after this that Dr. Whistler brought the patient before the meeting of the Association. He thought from these more recent developments that the affection might be malignant, and hoped he might get some decided opinion upon the case, but this he had failed to obtain. The man was subsequently treated by iodide of potassium in five grain doses, to be taken three times daily. This he has continued

throughout the past winter, and he has been relieved of all pain to the present time. Much of the laryngeal thickening still remained, and the swelling in the neck had rather increased. It has recently become more elastic.

Dr. Whistler passed a small trocar into it and drew off about half an ounce of a turbid straw-coloured liquid, with iridescent surface, which was evidently fluid from a cyst. This was confirmed by Dr. Waggett's subsequent examination, who reported that it contained large quantities of cholesterine crystals, a few blood corpuscles, and granular *débris*. After evacuating the cyst a clear view of the larynx was at once obtained. The epiglottis was no longer bound down, much of the swelling had subsided, but the thickened and rough surface remains as above.

Dr. Whistler thought the case one of the most interesting that he had met with, the special points being the abrupt onset of the pain and cramp in the first attack, with no approximate cause at the time, and its short duration; the many years that intervened before the next seizure and between all subsequent relapses; the close relation of the cyst to the larynx, and its gradual development during the course of the long-standing laryngeal affection; the want of any evidence of injury to account for the laryngitis, and the association of undoubted rheumatic symptoms during one of the acute laryngeal attacks.

MR. MAYO COLLIER. *Case of Nasal Polypi associated with Asthma.*

The first case I have the honour to bring before the society exemplifies, in a very marked manner, how nasal polypi may cause chronic irritation of the lungs. This gentleman, who has been good enough to sacrifice himself in the interests of science, has volunteered to come here to-day. It is a case of chronic asthma of a marked and severe kind. He tells me that for eleven years he has suffered from asthma, and that for several years before I first saw him he was under the care of various physicians, treated by them, and told subsequently that he had not six months to live. Since then he came under the care of a distinguished London physician, who is a friend of mine, and who asked me to see him. Previous to this he had suffered from severe attacks of asthma, so severe that he was suddenly taken at his work, became almost insensible, could not get his breath, and fell upon the floor. Cold water was thrown over him, and he was taken in a cab to a neighbouring physician in Finsbury Circus, who applied the battery, and after a great deal of trouble succeeded in bringing him to. At my friend's request I saw the case, examined it, and found that his pharynx was in a hypertrophic state, and in the nasal cavity there were a large number of polypi, springing from the middle and upper turbinate bones and obstructing both nasal cavities. I came to the conclusion that these polypi were the cause of all his troubles, and I sat down and removed some on one side. Subsequently, I removed the rest, and from the date that I restored his nasal respiration he never had the smallest attack of asthma. This immunity from asthma lasted until January of this year, and since that time, until about a fortnight ago, the whole of his troubles returned in an intensified form. He has, until about a fortnight

ago, had attacks of asthma, so bad that he could not move from his chair to another part of the room without great difficulty—as to going upstairs it has been quite impossible—and he has been compelled to sleep in the lower part of the house. Since the first operations, in 1890, he has been living in the country. He came to me about a fortnight ago, and I found that there were a large number of polypi present both on the right and left sides. I have removed seven large polypi, as large as the top of my finger, with a satisfactory result so far, for since then he has not had an attack of asthma, and he can walk upstairs with the greatest of ease. If you will take him into the next room, and examine him, you will find some polypi still present on the left side, hanging down from the margin of the post-nasal opening. I removed three this morning. I think this is a marked and an excellent example of chronic nasal irritation affecting the pneumogastric nerve. The change in the patient has been so rapid that from intense discomfort, with sleep impossible, and complete inability to walk upstairs, he now suffers no discomfort, and can as he says “walk upstairs like a lamplighter.” I think this is a case which will settle, once for all, the question of chronic nasal obstruction being an all-sufficient cause of both functional and organic diseases of the lungs and respiratory tract.

Case of Bilateral Adductor Paralysis.

The second case is one of considerable interest, and I shall be glad to receive your opinion upon it, as I am in some slight doubt as to the correctness of my diagnosis. I am indebted to Dr. Clayton, of Broadhurst Gardens, for sending me so interesting a case. She is a nurse in his sister's family, and about two months ago was suddenly seized with inability to speak, except in a hoarse whisper. Dr. Clayton has tried tonics and astringents, but with failure to effect any improvement in this lady's voice. She apparently suffers from no uterine, heart, or lung affection, or any general trouble. I examined her larynx and was struck, immediately upon looking into it, by the width of the rima of the glottis. The space between the arytenoid cartilages was very marked, and the whole interval was greatly enlarged. Upon requesting her to phonate, I could see that the cords could not be adjusted—they were adjusted to a certain extent, but not enough to produce sound. A considerable interval existed between the vocal processes. I came to the conclusion that it was a case of bilateral adductor, or rather sphincter paralysis, the arytenoideus being also affected, due probably to functional causes. I may say that from the first I have put her upon strychnine, and regularly applied electricity to the weakened muscles, and under this treatment she has markedly improved, so far that the vocal processes can be now brought together, but the arytenoid muscles are still quite inactive, so that she is practically in *statu quo ante*, so far as the voice is concerned. I shall be very glad to have an opinion from any gentlemen present which may possibly direct me, or assist me, in her cure. I have expressed the opinion that I think the case will get perfectly well.

The third is a case of *Acute Abscess of the Left Frontal Sinus*. When he came to the hospital he had intense pain and swelling over the eye.

The eye protruded, and there was a redness extending past the mid-frontal region. The temperature was 103° Fahr., and the boy was apparently very ill. I took him into the hospital, and after examination of the throat and nose I decided that it was a case of abscess of the frontal sinus, and I determined to trephine, or open as best I could, the frontal sinus. Next morning, under chloroform, I cut down upon the swelling, and came to pus. On examination of the inner and upper wall of the orbit with a probe, I managed to get into a small opening, which led me into a suppurating and denuded frontal sinus. I next introduced a curette, and scooped out and enlarged the opening, and subsequently passed a probe through this into the nose. Having got so far, I managed on the probe to introduce a drainage tube, and the case has since gone on fairly well. The sinus has been regularly washed out with chloride of zinc, but I regret to say that on removing the drainage tube the opening has closed in the nose, and he has now a re-accumulation of pus in the sinus.

This is also a typical case of chronic nasal obstruction. The anterior nares are very contracted; the turbinated bones approach the septum so closely that there is no space for ventilating the frontal sinus. If you look at his palate, you will see that it is highly vaulted, being quite an inch and a half above the level of the alveolar processes. The soft palate is so pushed backwards that the anterior pillars of the fauces are nearly in contact with the uvula. You will see also that his teeth are very irregular and crowded, being pushed in by the chronic aspiration of his nose cavities. Before parting with him, I would wish also to point out that, unfortunately, in this case there is also some damage to his mental faculties. I shall be glad if some gentleman will examine him. On passing a probe you come directly upon the frontal sinus, denuded and carious. We shall get no permanent benefit in this case unless we remove the nasal obstruction and open up freely the frontal sinus.

The fourth case, *Probable Epithelioma of the Larynx*, is one which came under my care some four years ago, and then she came to me suffering from hoarseness and cough. I examined her larynx, and found there was some ulceration on the left vocal cord, probably tubercular. The treatment I ordered was an astringent—I think it was chloride of zinc, something like ten grains to the ounce—and cod liver oil, arsenic, syrup of iodide of iron, and glycerine. Under this treatment she improved immensely, the ulcers on the cord cleared up completely, and she improved very much in health. Then I lost sight of her, and she returned about six weeks ago, complaining again of hoarseness. There was a distinct redness and swelling of the ventricular band, and a portion of the tissue under the ventricular band, and when I asked her to phonate there was a distinct inability of the cord to come to the median line. The arytenoid cartilage was distinctly stationary, and apparently the whole surroundings were fixed. Well, this state of things, after examining the neck, made me feel suspicious, and she has now been under my care, with very little or no treatment, for about five or six weeks awaiting operation. I have shown her to one Past-President of the Association, and he agrees with me in the opinion I have formed concerning her case. The fixation of the

vocal cords, her gradual tendency to anæmia, the loss of flesh—all point, in my opinion, to a distinct infiltration of the tissues attached to the arytenoid cartilage by a new growth, and I look upon it as undoubtedly a case of epithelioma.

The next case is one upon which I should certainly like to have your opinion. It is a case sent to me by a colleague of mine, and has been under his care for two months. It is an ulcer—a large circular ulcer on the palate, involving the right anterior pillar of the fauces, invading the under aspect of the right tonsil, and approaching the alveolar processes.

I may say that my colleague assiduously treated him with perchloride of mercury, but it has produced no effect whatever upon the ulcer. There is no evidence of syphilis in the man's case, or suspicion attaching to his wife. His lungs have been examined by a physician at the hospital, who declares that he is perfectly free from anything like pulmonary tubercle. There are no glands whatever to be found in the neck, he has apparently no pain, and I really am at a loss to know what is the nature of the ulcer in this man's case, and I shall be glad if any gentleman here will be kind enough to look at the case and tell me his opinion.

MR. G. C. WILKIN. *Case of Syphilitic Laryngitis associated with right apical consolidation.*

Mr. President and Gentlemen :—The interest attaching to all cases of syphilis, due to the extraordinary similarity in grouping of various symptoms to that shown in other diseases, would alone warrant my bringing the following case to your notice ; but if anything could intensify the interest and importance of such cases, it would be the remarkable manner in which this case has taken to itself the symptomatic grouping of tubercular phthisis.

The patient, a woman aged thirty-eight, was admitted to the London Throat Hospital on February 6th last, being sent by a general practitioner as an urgent case for tracheotomy. I was given to understand that the patient was suffering from phthisis.

When I first saw the patient she was in bed, somewhat exhausted by the moving, but without any sign of urgent dyspnœa. Her face was anxious, her voice a low whisper.

History.—The patient was fairly well nourished, but said she had lost a good deal of flesh since the commencement of her illness last August. There is no family history of phthisis. She has been married nine years next July. Has had no children but two miscarriages, the first about ten months after her marriage, the second three years later. Since that she has not become pregnant.

Last August the patient says she had an attack of erysipelas of the head and face, during which her hair fell off entirely and she became deaf. So far as the patient knows, the attack came on without any injury or other cause. About this time, by which is meant soon after the onset of the attack, the throat began to be troublesome, and from then until she was admitted it gradually got worse. Before the attack in August she says she always enjoyed good health.

Examination of the Larynx revealed considerable swelling of the epiglottis. The false vocal cords were greatly swollen, meeting in their anterior half completely, a small triangular chink being left behind, through which the patient breathed, and in which on adduction the true vocal cords became visible. The left false cord was more swollen than the right, so that more of the right true vocal cord was visible on adduction than of the left.

The colour of the tissue was dusky red, and fairly diffuse. Although, therefore, the patient did not appear in great distress on account of her breathing, it will be seen from the above that tracheotomy might have become an urgent necessity at any moment.

Examination of the Thorax—Lungs.—The movement of the right side in its upper half impaired. The percussion note all over was diminished. Over the right upper lobe, behind, the note was dull as compared with the other side, and the sense of resistance was greater. Moist sounds were heard generally over the thorax. There was increased vocal resonance over the upper right lobe, back and front. Pectoriloquy and a breath-sound, almost amounting to amphoric, was heard above the spine of the scapula.

Heart.—Sounds weak ; otherwise natural.

Urine.—Nothing noteworthy.

Sputum.—The expectoration from the first was only slight in amount. On three different occasions samples were taken by Dr. Waggett, the pathologist to the hospital, and examined for the tubercle bacillus, but it was never found.

The cough was dry and distressing. The patient suffered from dysphagia, fluid sometimes passing into the post-nasal space.

She had heavy night sweats and delirium. The temperature was peculiar. The first evening after admission it registered 100° F. Since, the morning and evening temperature has ranged between 97° and 99° F., but during the first ten days after admission, between the hours of twelve and three in the morning, it would run up to 102° F., the patient breaking out into a profuse perspiration. These sweating attacks have gradually subsided, and at the present time she has none.

Treatment.—As inhalation, vap. benzoin was tried at first ; but as this did not seem to relieve the patient at all, vap. conii was tried. This gave great relief.

The first night, as a narcotic, twenty grains of sulphonal was ordered. This failing, I ordered a linctus, containing codeia in half-grain doses, to be taken three times a day, and later on I gave a double dose at night-only.

Internally I gave no medicine with a view to checking the disease at first. When, however, I found that the bacillus of tubercle was not found in the sputum ; that there was no family history of phthisis, but a fairly suspicious history of syphilis ; that the laryngeal appearances were not those of phthisis, nor the general appearance of the patient in the least suggestive of the complaint, I put the woman on iodide of potassium and mercury.

A few days later I had the advantage of my colleague Dr. Whistler's

opinion on the case. He agreed with the diagnosis and treatment, advising that the iodide and mercury should be pushed.

From the day the patient was put on the antisypilitic treatment she steadily got better. There are now no signs of consolidation in the lung, though the air does not enter so freely into the right upper lobe as into the left one. The swelling of the soft tissues of the larynx is gradually subsiding, and the epiglottis is resuming its normal state, with only slight loss of substance on the left side. The voice, from being only a very low whisper, is, though still weak, gradually regaining its natural tone.

On reassembling, the PRESIDENT said: I think we are very much indebted to the three gentlemen who have brought such interesting cases before us. Dr. Whistler's remarks we have heard with great interest, and when we come to the group presented by Mr. Mayo Collier, I think nothing could have been of more interest, because in every case there is some important point, some question to be considered. I think he has been specially fortunate in the cases which he has selected. Take his case of asthma; we all know sceptics have doubted the possibility of any association between the nasal and pulmonary conditions; this case is an excellent example of what specialists claim to be the result of removing a source of irritation in the nostrils. The second case, I think, is also of great interest. We know how much has lately been written about functional and organic paralysis. And then the case of abscess of the frontal sinus is exceedingly interesting. The fourth case, that of early epithelioma, would have been very interesting to one of our fellows, Dr. Hunter Mackenzie, who has written upon the impairment of the function of the vocal cord as being a characteristic point in the early diagnosis of epithelioma of the larynx. The case of ulceration of the palate is an excellent example of the difficulties we have to meet in hospital and private practice. Dr. Wilkin's case is also interesting.

Mr. WYATT WINGRAVE: With regard to Dr. Whistler's case, a considerable light has undoubtedly been thrown upon it by the exploration. I have seen the case several times, and laryngoscopic examination afforded but little evidence of its nature, but from what was found in the fluid, I think that there can be but little doubt of its cystic nature. The important question now is its origin. Apparently there is a definite connection between the cyst, which can be felt on the outer surface of the thyroid cartilage, and the swelling in the larynx. This fact is strongly suggestive of its origin, either in an unobliterated portion of the pedicle of the lateral lobe of the thyroid gland, or as a lateral diverticulum from the sacculus laryngis, constituting a laryngeal pouch. This condition, as described by Bland Sutton, occurs normally in the howling monkey, etc., and pathologically in man.¹ This vestige has been probably the seat of some inflammatory process, resulting in the deformity and symptoms complained of.

Dr. WHISTLER: I am very glad, sir, to have the opportunity of bringing this case again before the Association. I have nothing to add to the view which I have already expressed.

¹ *Introduction to General Pathology*; 1886, p. 274.

The CHAIRMAN : The first case of Mr. Collier is that in which he has removed the polypi in the case of asthma.

Mr. STOKER : I am sure that we all endorse your expressions with regard to the extreme interest of the first case of Mr. Collier's. It emphasizes cases, which I have no doubt we have all had in practice, in which there is a great connection between the existence of nasal polypi and the existence of asthma. Of course, the initial steps of Mr. Collier's treatment are what would suggest themselves to us all, but with great humility I would venture to ask him what steps were taken to prevent a recurrence of the polypi, which he so successfully removed on the first occasion, and which have recurred in a short interval, to the extreme discomfort of the patient, and which he has now once more removed.

Dr. WHISTLER : I think there can be no doubt in the minds of all of us that in every case of asthma, to leave out an examination of the nasal passages would be to leave out a very important point, and that no more brilliant results have been obtained in the relief of this affection than by the removal of nasal obstructions such as have been referred to. That we do not always obtain the gratifying result that has been met with in this and many other cases is, however, the experience of all.

Doubtless in many of these instances the presence of obstructive and irritant growths in the naso-pharyngeal tract has been overlooked until more or less permanent changes in the lungs have resulted, and among these emphysema becomes a serious impediment to cure. While we meet with cases of asthma without the existence of nasal polypi or post-nasal growths, and on the other hand cases in which these growths are not associated with asthma, yet I think there can be no question that very much has been attained in the way of successful treatment since attention was first called to the very frequent and direct relation between naso-pharyngeal growths and asthma.

Dr. WOAKES : I am afraid I only imperfectly caught the tenor of my friend Dr. Whistler's remarks, but gather that he was discussing the various aspects of asthma originating in morbid states of the nose. Unfortunately it happens—at least this is my experience—that asthmatic patients seldom come under our observation until the asthma has existed for a considerable length of time. Under these circumstances it is patent to all that various pathological changes will have been established in the pulmonary organs, which are quite independent of the nasal disease which was their original and exciting cause. Obviously the removal at a late date of the primary disease in the nose will have very little effect upon those pulmonary changes to which I have just alluded, and which tend to perpetuate the asthmatic state even when the primary nasal disease has been got rid of. If this be so, it is apparent that every case of asthma that presents itself should, as early as possible, be submitted to a searching examination of the nasal organs, because if such cause exist and is discovered before the pulmonary apparatus has been damaged, there is every probability that when the nasal mischief has been successfully treated the asthmatic symptoms will disappear also. It is within the range of my experience that even long-standing cases of asthma are subject to severe exacerbations due to recent aggravation of

their nasal mischief. One typical case of this kind I had the opportunity of detailing to this society at a former meeting. Now it is quite competent to relieve the asthmatic exacerbation arising from this cause by the removal of the recent trouble in the nose. So that from many points of view it would seem that this intractable disease, asthma, has everything to gain and nothing to lose by the light which has been thrown upon it by recent rhinological investigators.

MR. WYATT WINGRAVE: May I ask Mr. Mayo Collier to explain why he includes the vagus as an afferent nerve in this particular reflex chain, viz., irritation of the turbinal by polypi causing dyspnoea, since the fifth is the common sensory nerve to the turbinal body. The conditions are analogous to those occurring in ear cough, in which the vagus is not necessarily concerned, the external auditory meatus being chiefly supplied by the fifth.

DR. WOAKES: I am sorry to rise again, but it appears necessary to traverse the remarks of the last speaker, to the effect that there is no anatomical relation between the fifth nerve and the pneumogastric. As I understand it, there is a distinct communication between the nuclei of these nerves in the medulla oblongata, and by this means afferent impressions arising in the nasal branches of the fifth may reflexly be transferred to the pneumogastric and so take effect in the various organs to which its branches are distributed. Neither do I see the relevancy of the remarks on ear cough if, as I understood Mr. Wingrave to say, the pneumogastric was not concerned in the mechanism of this symptom.

MR. WINGRAVE: Not necessarily with regard to the turbinal.

DR. WOAKES: Well, as a branch of the pneumogastric, the auricular, is usually supplied to the floor of the external meatus, it is difficult to see why an irritation of that branch should not produce an excito-motor reflex in the muscles of the larynx. This is a well recognized anatomical association, and it is the one that is now generally accepted to explain the symptom in question. What is understood by the term *besoin de respirer* has some bearing on this question. It is the impression communicated to the pulmonary branches of the vagus by the air in the lungs which has already done its work and requires to be renewed, and in response to this "want of breath" sensation the muscles of respiration come into play to effect the renewal. It is conceivable that an impression of this sort may be excited in the vagus by reflex irritations in quite other regions, and the exaggerated action of the respiratory muscles thus induced would be a part of the asthmatic tableau. However this may be, having established a connection between the fifth and the vagus nerve, it becomes clear how by its means may arise not only functional disturbance of the lungs, but of the heart also. As regards the latter organ, there is no more common accompaniment of nasal disease than disturbance of cardiac function. This usually expresses itself as cardialgia or præcordial distress, and palpitation or rapid heart. My colleague, Dr. Sansom, has brought forward a number of cases of this kind, which he referred to ear disease. I had the opportunity of seeing several of his patients, all of which were complicated with advanced nasal disease, and it was doubtless to this latter that the

ear mischief was due. Deafness being a pronounced fact is more likely to attract attention, while the nasal trouble escapes notice. At any rate, these cases of ear and nose disease all exhibited cardiac disturbance; and it is difficult to see how the association can be explained except, on the one hand, through the communication of the fifth with the vagus, already pointed out, or, on the other, by implication of the cardiac branches of the sympathetic system. The one certain fact that remains is, that both organs, lungs and heart, are very commonly affected, functionally, in nasal disease, and what is more to the purpose, when the latter is cured the former cease also.

Mr. WYATT WINGRAVE: I thank Dr. Woakes for referring to Arnold's nerve, but I think he will find that its distribution does not include the external auditory meatus as a rule. It supplies the post-auricular region, and the process by which the irritation is referred to a vagus region may be a mental act in ear cough.

Mr. COLLIER: I have at once a difficult and an easy task to perform; in the first place in answering observations I have not made, and in the second place in answering the observations I have made. Regarding, first of all, the remarks I have made, I must refer to the observations of Mr. Stoker. He asked me what steps I took in this case of asthma and nasal polypi to prevent a rapid or immediate return of the disease. May I remind him that I first operated upon the case in July, 1890. The second operation was within a fortnight ago—in 1894. It is a question of what you mean by a rapid recurrence.

Mr. STOKER: May I venture to remind you what my question was? I understood that there was a recurrence in January last, and secondly I distinctly understood that a recurrence was operated upon a fortnight ago! The first question was with regard to the recurrence in January, and the second was with regard to the rapid recurrence more recently. If I am mistaken about the recurrence recently I apologize, and ask simply about the primary recurrence.

Mr. COLLIER: I first operated upon him in July, 1890. When he had the recurrence in 1894 I did not see him, until about a fortnight ago; I think that does away with the question.

Mr. STOKER: I want to know what steps you took in the primary case.

Mr. COLLIER: A local anæsthetic, cocaine ten per cent. solution, and then applied the galvano-cautery to the whole surface, wherever there was any appearance of the pre-existence of polypi; subsequently, an astringent and antiseptic wash, and that was apparently sufficient to prevent any recurrence until January, 1894. As to the next criticism, delivered by Dr. Woakes, though not publicly, that these cases are as common as blackberries, they may be so to him but they certainly are not to myself. There was a rapid and immediate improvement of asthma, very long-standing asthma, with a history of eleven years. The asthma was so bad that the man could not walk from one chair to another, and could not go upstairs; in fact, he used to bring everything down in the morning that he would want during the day. He is a clerk in a large firm of stockbrokers in the City, and was frequently seized in his office

with attacks of asthma, so much so that he once fell down upon the floor, and appeared to be on the verge of death, and he had to be carried to a physician in Finsbury Circus, who restored him by a continuous current. I brought the case forward as illustrating what serious and definite effects these nasal polypi may produce. The next criticism, I think, is a purely anatomical one, and I think I can dispose of our worthy secretary's remarks in a few words. He asks, "What can any obstruction in the nose have to do with the interior of a man's lungs?" May I, with great respect to him, point out this fact—that the nose has certain functions to perform, and those functions, amongst others, are to warm, filter, and moisten the air.

Mr. WINGRAVE: It was not a question of remote function—it was *the direct anatomical connection of the pneumogastric with the nose*.

Mr. COLLIER: That is the question I am dealing with now. I am saying that the nose has a function to perform, and that that function is to moisten, warm, and filter the air, and if the air enters the lungs unwarmed, unmoistened, and unfiltered, there is a definite irritation in the lungs, and that is sufficient to set in action those small muscles which Mr. Wingrave may possibly have forgotten the existence of—the muscles behind the bronchi—filling up the intervals of the bronchi. When irritation sets in the bronchi contract, and the power both of expiration and inspiration is limited. The same thing occurs at the top of the larynx if the air passes into the trachea unfiltered, unmoistened, and unwarmed. Besides that, may I point out that the pneumogastric sends down many branches to what is known as the pneumogastric plexus, which supplies the whole interior of the lungs, also several branches to the trachea and larynx, as well as to what I trust we are all aware of—the pharyngeal plexus. The pharyngeal branches join here with the glosso-pharyngeal nerve, as well as several branches from the spheno-maxillary or nose ganglion of the fifth nerve.

The CHAIRMAN: The next case is that of the paralysis.

Dr. GRANT: It occurred to me that the cords were distinctly sluggish; no doubt it is due to want of tension. They seemed to cling together in their anterior portions, but there was no actual adhesion.

The CHAIRMAN: The abscess of the frontal sinus is the next case, but I think the fourth case which he placed before us was especially interesting, and is a very important case for discussion.

Mr. COLLIER: May I rise to ask any gentleman to give me his opinion upon this case, as I am in some slight doubt as to whether it is due entirely to functional causes.

Dr. WHISTLER: I do not find any nodulation at the anterior portion of the cord, or any structural change. I look upon it as a very clear case of paralysis of the arytenoid muscle, and I should say that it was probably of a functional nature. I have seen a few such instances in functional aphonia, remaining after paralysis of the lateral adductors. It is certainly not frequently met with under these conditions, and I have always found it to be very persistent.

Dr. GRANT: That case of the ulcer on the palate is certainly a very singular one. Of course, the conclusion that one jumped at from the

description was that it was going to be a case of epithelioma, but I think the duration of the case, and particularly the want of induration and infiltration, seem to put that out of court altogether, and the question arises whether, as Mr. Stoker suggested, it was one of a lupoid character. I am disposed to think it tuberculous in nature. I hope we shall have the opportunity of again seeing the case, because it is certainly a very rare and interesting one.

Mr. STOKER : I have seen the case, but I am not sufficiently a pathologist to be able to distinguish between a tubercular and a lupoid origin, I think I may venture to suggest, as we have been asked to remove some tissue growing at the surface, that we subject it to microscopic examination. If it is epithelioma at this stage, it has existed for six months, and may be longer, without his knowledge and perception. The removal of the surface of the ulcer will give us a distinct indication.

Dr. WHISTLER : I think it would be a bold task to undertake to give a definite opinion upon it without microscopic examination of the growth. Its appearance leads me to look upon it as malignant. For a growth of that kind to come on at the age of sixty seems to me to point rather to epithelioma than lupus.

The CHAIRMAN : I am inclined to think that the tumour is epitheliomatous in nature. With regard to treatment, I should prefer to remove it completely rather than to scrape. Scraping, as a rule, involves greater possibility of irritation and consequently greater possibility of recurrence if we be dealing with malignant disease. When ulceration extends to such an extent as we have in this case, valuable time may be wasted and a successful result prevented. It might be a good thing in the first instance to remove a portion of the tumour and have it examined by the microscope before coming to a definite conclusion ; but were the case under my observation I would clearly let the patient understand that if anything of a suspicious nature be found, operation should be proceeded with at once.

Dr. GRANT : The best local treatment would be energetic cauterizing.

The CHAIRMAN said that they had a large number of such cases in the throat wards of the Glasgow Royal Infirmary, and he had come to regard all conditions of scraping or burning as liable to set up a good deal of irritation, not only locally but in the glands. He was under the impression that such glands were more easily infiltrated afterwards, consequently he preferred the knife or scissors to the cautery or curette where radical measures were required. One must always consider that in any operation there are two results to be considered, the immediate and the ultimate result, and he preferred the above method of treatment to any other because in this way prevention of recurrence was more surely obtained.

Mr. COLLIER : I brought this case down, feeling considerable interest in it, because a great many gentlemen have seen it at the hospital, and not one has ventured to express any opinion on the facts of the case, and I thought that by bringing it to this meeting I should be sure to have an extensive criticism on the various phases of the case. Now I must say that I am a little disappointed that several of the most distinguished

members of the Association have not dared to make the smallest remark upon the facts of the case. May I again state that he is an old gentleman of about sixty-five years. He presents himself suffering a little with sore throat, he does not complain of any pain, and there is no difficulty in swallowing. He presents himself to a physician who diagnoses syphilis, who puts him on mercury and large doses of iodide of potassium. Besides that, he is put on chlorate of potash. After two months' treatment my colleague hands the case over to me, and with great interest I go into every phase of the man's case. I have his lungs examined, his heart examined, I go extensively into the history of his life. His wife has never had a miscarriage, and there is no indication of syphilis, so far as we can make out, for after keeping him for two months on mercury, I think that is sufficient to exclude the possibility of syphilis. Not only that, but the whole appearance of the case is distinctly against syphilis. The man has a round, circular ulcer on the hard palate, encroaching on the pillars of the fauces, and invading the tissue of the right tonsil.

There is one characteristic about that ulcer which I would ask you to bear in mind. There is a distinct margin separating it from the perfectly healthy tissue. There is no involvement of this margin at all—it is absolutely healthy. The soft palate is healthy and pink, and has no infiltration. There are two parts of the ulcer—that portion towards the median line, and that portion towards the alveolar process. The first is in a state of deep ulceration, and there is no attempt at healing; in the other portion of the tissue approaching the alveolar process, there is granulation tissue and an attempt at healing. If you put your finger upon the inner aspect of the last alveolar process, you will find it is distinctly involved, thickened and painful. One has then to consider what is the cause of this ulceration. If it is not syphilis, what is it? You say it may be epithelioma. Now, what are the indications of epithelioma? Did you ever see a case of epithelioma of that description, where one portion of the ulcer was distinctly stationary, the surrounding tissues were not involved, no glands in the angle of the jaw, the man had never suffered pain, and only one portion of the ulcer was invading the surrounding parts? I can only say that I never did, and I never read of a case of that description. Then, you will say it may be tubercular, but I ask you did you ever see a case where the margin was perfectly healthy, no mouse-eaten appearance at the edges, no infiltration of the surroundings? I say I never did. Then, what else may it be? Now, the only ulcer I have ever seen compared to that ulcer is an ulcer you may have seen yourselves frequently on various parts of the body, especially on the penis—the ordinary “chancre” on the penis. That is the ulcer which suggests itself to me. I must say that there is no other ulcer I have ever seen that bears any similarity to that ulcer, except the non-syphilitic ulcer. I have seen them in various parts of the body, and if there is one possible shot I might have been led to make I should say he must have got some of this poison upon his palate. I myself do not believe that it is epithelioma. I do not believe it is tubercular. His lungs are perfectly healthy, and its appearance does not lend itself to that. I do not believe it is syphilis, but I do believe it will get perfectly well under

local treatment. I have purposely avoided scraping, or having anything to do with that ulcer, until I had got as good an opinion as I was able to. This man, I may add, is a great smoker and has a pipe, and consequently might have got infected in various ways, and that is the only solution I can offer. As to lupus, I do not think it in the least resembles it, and as to rodent ulcer, its duration puts it absolutely out of the question. Did one ever see a lupus ulcer present an appearance anything like that one—a circular ulcer, with a perfect line of demarcation separating the diseased ulcer from the healthy tissue?

Dr. GRANT: In the case of epithelioma of the larynx, I am disposed to look more seriously upon an affection of the glands on the left side than Mr. Collier does. I do not think the prognosis a favourable one. Still, it is comparatively early, and there are enlarged glands on the other side, so perhaps I attribute too much importance to the infiltration of the glands, but I must say I think it a very serious element in the prognosis.

Mr. MAYO COLLIER: I have had the case under my care off and on for four years, and it is only within the last six weeks that I have come to this conclusion, and I have deferred operating, perhaps a trifle too long, in order to show the case to this society. It does not occur once in many years that one has the opportunity of watching the whole progress of a case like this, and, as I have said, I have deferred operating simply in order to show the members of this society a case which is undoubtedly interesting.

Dr. WHISTLER, speaking on the case presented by Mr. Wilkin, said: I published a case similar to this several years ago. In my patient there was extreme emaciation, night sweats and cough, with extensive ulceration in the larynx. She had also a cavity at the apex of the right lung. These signs and symptoms pointed to tubercular disease, but she had at the same time an ulcerating gumma on the forehead. Under iodide of potassium she rapidly improved, and in two months' time the laryngeal and pulmonary disease was cured. When I saw Mr. Wilkin's case the appearance of the larynx pointed, in my opinion, more to diffuse infiltration of syphilis of a tertiary character than to tuberculosis. Remembering the case I have cited, I advised the continuation of anti-syphilitic treatment, and I think that so far we may say that the result has been very satisfactory. Now-a-days, of course, we have the aid of microscopical examination for tubercle bacilli in doubtful cases, which I did not have in the case I have referred to.

Mr. WILKIN: I simply brought the case forward because I thought the combination of disease in the larynx and disease in the lung—the apex of the right lung—was one which is very rarely met with, and, being undoubtedly due to syphilis, was one of extreme interest. Another reason why I laid particular stress upon bringing this case before the society is that in the examination of the sputum never were any bacilli found; and I think it is a great advance, from a diagnostic point of view, that we are able with confidence to examine the sputum for the bacilli. I do not take the strong view of the bacillus theory that a great number of gentlemen in the profession do, but at the same time I do think that in all tubercular cases or suspicious cases of tubercular disease the examination

of the sputum is a thing which every doctor should do, because it undoubtedly may throw a good deal of light upon the after treatment.

The CHAIRMAN said he would like to make a few remarks about what Mr. Mayo Collier had said in reference to his case of ulceration of the palate. He should be sorry to be misunderstood in the case. His remarks did not bear upon the possibility of removing the ulceration by antiseptic or sedative treatment, such as Mr. Mayo Collier had suggested. In a case of the same nature he had seen excellent results from the application of aristol locally. He thought these means might first be tried, but what he meant to convey was that once all such measures had been tried and the question of operation was present he would proceed, after microscopic examination, to complete removal of the tissue rather than curetting or cauterization.

DEMONSTRATION ON THE USE OF THE PHONOGRAPH IN MEDICINE.

Dr. MACINTYRE then proceeded to demonstrate a number of phonographic records, and classified them as follows :—Firstly, physiological. He let the fellows hear several records taken of cases where complete excision of the tongue had been performed. In some of these cases the patient could speak well, and in some instances the patient was able to pronounce every letter of the alphabet. The best instance he had ever seen of such was that of a case of Prof. William Macewen's, of Glasgow, where the patient could speak better after complete than after partial removal of the organ. He might have an opportunity of showing these records at the Association some time in the future. Such cases afforded a striking example of the adaptability of parts for new work when important organs were removed.

Secondly : Dr. Macintyre thought the phonograph was going to be of immense use in teaching those who are deficient in hearing and speaking.

Thirdly : A series of cases indicating hoarsenesses were exhibited, and in this special branch its suitability for medical teaching was especially shown. Dr. Macintyre demonstrated hoarsenesses due to new growths, differing from those due to pressure upon the nerves, and these again from loss of voice depending upon ordinary catarrh. Records were also given of cases of loss of voice where whispering or buccal sounds alone could be detected.

Lastly : The Chairman intimated that he had been able to record such fine sounds as those of the heart by means of special apparatus constructed by himself.

The second part of this demonstration bore particularly on the transmission of these sounds. He had not only been able to record on the phonographic cylinders, but to transmit the sounds long distances. He further described a number of microphones devised by himself and suitable for medical purposes, and said he felt quite sure the day was not far distant when, by means of the phonograph in class-rooms of colleges or universities, we would be able to teach students directly from such records, and also to transmit the sounds proceeding from the living patient in a hospital at a distance so as to allow numbers of students to hear them at the same time.

PATHOLOGICAL SPECIMENS.

Tubercle of the Larynx.

This specimen was shown by the President with a view to pointing out how much good sometimes followed tracheotomy, even where the disease was extensive. The patient, a girl aged fifteen, came to the Glasgow Royal Infirmary six months ago, so much asphyxiated that chloroform could not be administered; the operation had to be performed immediately, but while the patient was practically unconscious. A careful examination afterwards revealed the extensive nature of the affection, the whole interior of the larynx being diseased. It was not expected that the patient would recover from the operation, especially considering the advanced state of the disease and the general emaciation. The relief to the breathing and swallowing was so great that within a week she was able to go about, and shortly afterwards she was dismissed to become an outdoor patient. Death did not take place until four months afterwards, and that, as far as we could learn from the mother, was due to an accident with the tracheotomy tube. Between the time of her dismissal from the hospital and death she became much stronger; the general emaciation became less and less as the breathing and swallowing improved. The interest in the case lies in the great recuperative powers exhibited by the patient under conditions which would have led one to expect that no recovery was possible.

Epithelioma of the Septum.

The patient, a man aged fifty-three, was taken into the Glasgow Royal Infirmary, suffering from what he called polypus. On making a careful examination it was quite evident that we were dealing with a round tumour, the size of a cherry, dark in colour, springing from the anterior portion of the septum, and involving the perichondrium over the triangular cartilage on the left side. The tumour was excised along with the cartilage, and the patient made a good recovery. A section under the microscope shows that it was a case of epithelioma of the septum, as diagnosed before operation.

Multiple Papillomatous Tumours in Children.

The case from which this specimen was obtained was that of a boy, brought into the Royal Infirmary, suffering from loss of voice. Next day I saw the patient, and found the interior of the larynx completely filled with these papillomatous masses. They were removed with Dundas Grant's forceps, in three sittings, and the patient has recovered completely. The loss of voice and the difficulties in breathing have entirely disappeared. This case has been placed on record because it has been suggested that thyrotomy should be performed in such cases.

Mr. WYATT WINGRAVE exhibited sections of a growth from the faucial tonsil, which he described as springing from the floor of an enlarged crypt. When first seen it appeared as a red polypus projecting about half an inch from the surface of the left tonsil. On removal with a snare, the portion below the surface measured three-eighths of an inch.

Microscopically, the deeper portion consisted of dense small cell tissue, whilst the projecting part showed dilated vascular channels, surrounded by spindle-shaped cells, and covered superficially by stratified epithelium, constituting an angio-fibroma.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON LARYNGOLOGY AND RHINOLOGY.

Stated Meeting, held on Wednesday Evening, March 28th, 1894.

Dr. D. BRYSON DELAVAN, *Chairman.*

Dr. O. B. DOUGLAS presented the formula for an oily mixture, which he stated he has found serviceable in many cases where an antiseptic, mildly stimulating, soothing preparation was indicated. The base of the mixture is benzoinol, which consists of benzoic balsam, dissolved in pure vaseline oil. The formula given is as follows:—

Thymol	gr. x.
Eucalyptol.....	gtts. xx.
Menthol	gr. xxx.
Ol. cubebs	gtts. xxxx.
Ol. benzoinol	oz. iv.
Ol. rose, q.s.	

If the mixture be too pungent, it may be reduced by adding plain benzoinol. As an inhalant in bronchitis and tuberculosis it is also very beneficial. It may be taken several times a day. Dr. Douglas also exhibited a hand atomizer to be used in spraying the mixture.

Dr. MYLES also presented two patients in whom he had opened the frontal sinus by external operation. Both the patients had suffered from polypoid degeneration, not only of the frontal, but of other accessory sinuses; one of them for twelve years. The chief symptoms complained of were severe frontal headaches. In both cases an incision was made from the side of the nose upwards, and then along the brow. The bone was then chiselled through, and an opening about ten millimètres in diameter made into the sinus, the cavity of which was then curetted and packed with gauze. Packing was continued for about a month, and since its removal the cavity had been irrigated daily with an antiseptic solution. The scar left by the operation in both cases was not serious. The cases were still under treatment.

The CHAIRMAN said that in his experience the best results in operations on the frontal sinus have been gained by making free communication into the nasal cavity.

Dr. HENRY D. NOYES referred to a case of disease of the frontal sinus in which the margin of the cavity was covered with a considerable amount of exostotic growth, which formed an extremely hard projection

at the inner angle of the eyeball. In that case he made a communication with the nasal cavity, thus permitting free drainage, and within four months the patient's symptoms were entirely relieved.

Dr. MYLES said that in the cases presented there was free communication between the sinus and the nose, but that did not relieve the symptoms in polypoid degeneration of the cavity.

A Case of Necrosis of the Superior Maxilla, involving the Antrum.
Presented by Dr. W. K. SIMPSON.

A male, aged thirty. Denied syphilis. The first symptoms were noticed in August, 1893, as a summer coryza, similar to hay fever, and limited mostly to the right side. The face, over the region of the antrum, would swell and become painful from time to time, involving both sides, but mostly the right. Three months later a purulent discharge, with bad odour, appeared from right naris. This was succeeded in a month by toothache, and alveolar swelling on the right side. Seven teeth were extracted, without much force being used. With the extraction of the right canine tooth a flow of pus was established, the aperture communicating with the right naris through the antrum. The purulent discharge and odour continued constantly through both the nose and the opening made by extraction of the tooth, and small particles of decayed bone occasionally came away.

On March 8th, 1894, the patient was operated on by Dr. McCosh. An incision was made along the alveolar border, and large pieces of necrosed bone were easily removed, to the extent of taking away all of the spongy portion of the right side of the superior maxilla, and extending somewhat over the median line to the left side, leaving a very large cavity, with openings into the left and right nostrils. The cavity had been packed with iodoform gauze, and was healing rapidly.

A Case of Naso-Pharyngeal Sarcoma, successfully removed. Presented by the CHAIRMAN.

A male, aged seventeen. About two and a half years ago he began to have recurrent attacks of epistaxis. Examination of the nose at that time disclosed nothing abnormal. Later on, a swelling appeared in the left superior turbinated body, and this rapidly increased in size until it about half filled the left nasal cavity. The hæmorrhages became so frequent and abundant that the patient's strength was very much reduced. About this time he came under Dr. Delavan's observation. A thorough examination was made under ether, and disclosed the fact that the growth was high up, and had numerous ramifications. It partly filled the pharynx, and almost entirely filled the left nasal cavity. The general condition of the patient being too feeble to admit of any radical operation, he was given tonics, and the electrolytic treatment was applied to the growth. Under this the hæmorrhage quickly ceased, the general health improved, and the growth materially decreased in size. At the end of a year, however, electrolysis ceased to be effective; the hæmorrhages returned, and the growth again enlarged very rapidly. Operation was advised, and was performed by Dr. Robert Abbe, in July,

1893. He removed the growth as radically as possible. Hemorrhage during operation was exceedingly severe. By November, such marked recurrence had taken place that a second operation was necessary. At this time Dr. Abbe removed a part of the superior maxilla on the left side, and found the growth to be attached to the left sphenoidal sinus, from which it was apparently thoroughly removed. A large opening was left in the roof of the mouth, through which the original site of the pedicle of the growth could readily be seen. Several slight recurrences appeared after the second operation, which were promptly removed by the galvano-cautery. For the past four months there had been no sign of any further recurrence.

Report of the Removal of a Naso-Pharyngeal Tumour by the Galvano-Cautery Écraseur, with Exhibition of the Patient. By Dr. RUFUS P. LINCOLN.

A young man, aged nineteen. He first came under Dr. Lincoln's observation in July, 1893, complaining of headache and obstructed nasal respiration on the left side, which was first noticed in September, 1892. There was also pain in the left eye. To inspection, the left side of his face was fuller than the right, and the eye apparently more prominent. In the interior of the left nostril an obstruction could be made out, about three inches from the tip of the nose, hemorrhage from which was started when it was delicately touched by a probe. Air could not be forced outward through the nostril, but by a strong effort it could be drawn in through it. On the right side nothing abnormal was discoverable, and there was no obstruction to respiration. Posteriorly, the mirror disclosed and the finger detected a tumour attached to the vault of the pharynx, principally on its left portion, over the upper part of the pterygoid process, extending into the left posterior naris. It was elastic to the touch, and of a pale, purplish colour. The fulness of the left cheek was caused by the presence of an abnormal body near the mucous membrane, and prolonged from behind the anterior portion of the zygomatic arch. It was elastic, and its dependent portion movable when seized between the fingers. It was doubtless a prolongation from the main body of the tumour at its attachment to the body of the sphenoid, extruding through the sphenopalatine foramen.

Immediate operation was advised, but was postponed by the patient, who was about to go abroad. On his return, six months afterwards, the tumour had quadrupled in size and all its symptoms had increased proportionately. There was no longer any nasal breathing. A profuse muco-purulent discharge flowed from both nostrils. The lower portion of the tumour could now be seen extruding a little below the free border of the soft palate. The prominence of the left cheek had very much increased. On January 12th, 1894, the tumour was removed by means of the galvano-cautery écraseur, the operation being done under ether. A double electrode, armed with a looped irido-platinum wire was passed through the left nostril, the loop being carried into the mouth and behind the tumour up to its attachment; the growth was then divided at its base and removed through the mouth. The hemorrhage was

slight. The symptoms of obstruction were at once relieved and have not returned. The tumour proved to be a vascular fibroma. The patient made a quick and uneventful recovery. The tumour that presented in the cheek has already somewhat lessened in size, due to atrophy. Dr. Lincoln said that since the operation he has only made one canterization of the stump of the growth, because the pain in the left eye was much increased in consequence. This pain in the eye long antedated the naso-pharyngeal symptoms, and was aggravated by study. An examination of the eye, made by Dr. J. B. Emerson, shows a normal fundus and slight exophthalmos; he detected nothing to indicate a growth in the orbit. There is no explanation of the pain in the eye, excepting that it is reflex, or due to the mixed astigmatism that exists. Dr. H. D. Noyes also examined the patient, and reached substantially the same conclusions.

In conclusion Dr. Lincoln referred to a case of naso-pharyngeal tumour, operated on by him in 1875, and presented the patient, a gentleman, who gave every appearance of being in perfect health. In that case the symptoms were strikingly similar to those in the one just narrated. The case was reported in the "St. Louis Med. and Surg. Journ.," November, 1879.

Dr. H. D. NOYES said he made a careful examination of the patient presented by Dr. Lincoln, with a view to determining the cause of the slight exophthalmos that exists. The question was whether the tumour had already entered the orbit or not. His first idea was that the exophthalmos might be due to obstruction of the veins passing through the sphenomaxillary fissure, but after listening to Dr. Lincoln's detailed history of the case, he was rather inclined to the belief that it was due to an extension of the tumour into the orbit. As to the pain the young man complained of, that might be produced by the pronounced degree of mixed astigmatism, or by the embarrassment in the action of the muscles. The pressure of the eye-ball might also give rise to a positive feeling of pain; it might be due to a periosteitis of the orbit, caused by intrusion of the growth. There was some enlargement of the retinal veins, and an abnormal amount of pulsation.

Fishbones in the Throat, and what they suggest concerning Deglutition.

Dr. ADOLPH RUPP read a paper on this subject. He first referred to the comparatively rare occurrence of this accident. Among over seven thousand patients treated for throat affections at one of the New York hospitals during the past year, there was not a single case of foreign body in the throat. A local trouble of some kind in the throat often gives rise to pain and discomfort, which such patients are apt to ascribe to the lodgment of a foreign body; those addicted to the immoderate use of alcohol or tobacco appear to be especially liable to these sensations. Very little reliance can be placed on the history given by the patient in such a case. A careful examination of the throat is of the utmost importance, and the *tactus eruditus* is of special value. The possibility that more than one foreign body may be present should not be lost sight of. Such a case has been reported by Mackenzie. The author narrated the histories of five cases coming under his observation in which a foreign

body was found lodged in the throat. In one of them a fishbone was removed from the right tonsil. According to the statement made by the patient, it had been there for six years, and had given rise to recurrent attacks of tonsillitis. Since its removal, four years ago, the patient has had no more such attacks.

Dr. Rapp then reviewed the various theories of deglutition, and discussed the possible bearing of the muscular movements that accompany the act of swallowing upon the impaction of foreign bodies in the throat. His conclusions were as follows:—

1. The reasons for the impaction of foreign bodies, such as fishbones, pins, and the like, are not to be sought for primarily in the throat.

2. The tongue, fauces, and pharynx are perfect organs, looked at from a mechanico-physiological point of view.

3. The primary cause of foreign bodies becoming entangled in the throat is to be looked for in the bolus itself; the position of the fishbone or needle therein, whether deep or lying on the surface, and the angle it occupies to the long axis of the bolus, besides the various and varying forces that act on the bolus as it descends to the stomach.

4. Possibly the food descends with a twist or screw-like movement.

5. The Falk-Kronecker-Meltzer conception of deglutition, based on experimental results, may be utilized in explaining how fishbones, etc., may become impacted, and these experimental results do not exclude the element of gyration in the onward shooting bolus.

6. The epiglottis is an indifferent organ in so far as deglutition is concerned.

The CHAIRMAN said he agreed with Dr. Rapp's statement that the impaction of a foreign body in the throat is an accident of considerable rarity, and that the history given by the patient cannot be relied upon. In each case we should make a thorough examination, omitting, if necessary, palpation.

Dr. PARK narrated the histories of two cases of foreign bodies in the throat which had come under his observation during the past month. In one case a pin and in the other case a fishbone became stuck in the posterior pharyngeal wall. In a case he saw some years ago, the patient attempted to swallow a turkey's heart whole "for luck," and it became impacted in the pharynx. After an unsuccessful attempt to force it down the throat it was removed with the curved forceps.

ABSTRACTS.

DIPHTHERIA.

Health Department of New York.—*Diphtheria*. "Brooklyn Med. Journ.," March, 1894.

REPORT of four hundred and five cases of true diphtheria. In two hundred and forty-five the bacilli disappeared three days after the disappearance of the membrane; in one hundred and three in seven

days ; in thirty-four in twelve days ; in sixteen in fifteen days : in four not for three weeks ; and in three not for five weeks. Irrigation with antiseptics from the commencement causes a more rapid disappearance of bacilli. The department only accept bacteriological proof of the cure of the complaint.

R. Leke.

Wethered (London).—*The Diagnosis of Diphtheria by Bacteriological Cultures.*

"Brit. Med. Journ.," March 24, 1894.

THE author referred to twenty-six cases of diphtheria and sixteen of follicular tonsillitis. His practice was to obtain particles of the deposit from the throat by a strong platinum loop. The particle was drawn over glycerine agar-agar, and placed in an incubator at a temperature of 37° C. for twenty-four hours, and the cultures examined microscopically. In sixteen cases of follicular tonsillitis he found staphylococci only, but no organism resembling the bacilli of diphtheria. In the twenty-six cases of diphtheria fifteen times the bacillus was found, three times streptococci, eight times staphylococci. Baginski stated that streptococci might cause mild forms of diphtheria, but of Dr. Wethered's three cases two recovered and one died. Dr. Wethered summed up as follows : (1) that bacteriological examination of material obtained from the throat in doubtful cases of diphtheria might prove of great service in diagnosis ; (2) that on microscopical examination there was no great danger of mistaking organisms found in cases of follicular tonsillitis from the pathogenic organism of diphtheria, although the naked eye appearance of the cultures was not characteristic ; (3) that as some observers had described non-malignant organisms similar to the diphtheria bacillus, in case of doubt plate cultures on gelatine should be made as control experiments.

Wm. Robertson.

White, Hale (London).—*Diphtherial Paralysis suddenly fatal, owing to Entrance of Tea into Bronchial Tubes.* "Brit. Med. Journ.," Mar. 24, 1894.

THIS occurred in a man who three weeks after a severe attack of diphtheria became paralytic. Food regurgitated through the nose, and there was unilateral paralysis of the palate. Muscular and tactile sensation was slightly impaired. When drinking some tea, he suddenly began to cough. This ceased in a few seconds, and the patient became very distressed in his breathing, exactly as if he had been suffering from asthma. There was at no time any evidence that the larynx was obstructed. The patient was dead in less than ten minutes from his taking the tea. The pulse continued good till the end. At the necropsy an ounce and a half of tea was found in the bronchial tubes, and this was absolutely the only cause for death. Dr. White pointed out that although there were very rare instances on record in which the impaction of solid food in cases of diphtherial paralysis had caused death, he had not come across any case in which such a small amount had caused death by spasm of the bronchial tubes, which was in all probability what had happened in this patient, the result being no doubt favoured by the weakness of the abdominal and muscles of deglutition.

Dr. Goodall remarked that there were undoubted cases of diphtherial

paralysis due to neuritis ; patients with abductor paralysis (laryngeal), strabismus, and intense dyspnoea during inspiration had, after tracheotomy and intubation, recovered. Patients with laryngeal paralysis should be fed with a nasal tube.

Wm. Robertson.

Baumler (Freiburg).—*On the Use of Sublimed Sulphur as a Local Application in Diphtheria.* "Brit. Med. Journ.," March 3, 1894.

THIS drug, first suggested as a cure for diphtheria by Laganterie in 1866, and since then disparaged as such by Jacobi and Oertel, has again been landed by Fraser, Leibermeister and the author of the above article. Powdering the diseased mucosa thickly with the sulphur thrice daily or hourly, together with gargling and suitable dieting, produce as favourable results as any other remedy. The larynx is treated by blowing the powder into its recesses.

Wm. Robertson.

Frazer, R. F. (London).—*Further Cases of Diphtheria successfully treated by the Local Application of Sublimed Sulphur.* "Brit. Med. Journ.," March 3, 1894.

FIVE out of six cases successfully treated by the local insufflation of the powder on to the diseased tracts, along with iron and a liberal supply of fluid nourishment.

Wm. Robertson.

Lawrence, V. E. — *Iodide of Lime in Croup.* "Brooklyn Med. Journ.," March, 1894.

THE author describes this as a dark-brown substance affected by light, and not "iodide of calcium." Ten grains dissolved in four ounces of water is the solution advised ; one to two drachms either every quarter or half hour, or every hour.

R. Lake.

Seward, W. M.—*A Case of Intubation of the Larynx of unusual interest.* "New York Med. Journ.," Mar. 3, 1894.

THE author intubated on four separate occasions, exclusive of simply changing the tubes. The case was one of diphtheria. The first time the tube was in five days, and had to be replaced five days later. It was expelled on the third day and left out, but had to be replaced on the second. It was left out one day, only to be replaced on the second after its withdrawal ; it was then left in for the remainder of the illness—in all, forty-seven days—being changed weekly. Different shaped tubes were used to prevent ulceration. Two hours before its final withdrawal two grains of Dover's powder were administered to prevent spasm. This was repeated at intervals when there was any sign of spasm, and the patient ultimately did well.

R. Lake.

Gillett.—*Comparison between Tracheotomy and Intubation in Laryngeal Diphtheria.* "Gaz. des Hôpitaux," March 5, 1894.

A CRITICAL study, based upon two considerable collections of statistics from different modern and ancient authors. The results in tracheotomy are—15,995 cases, 4816 cured, or 30.18 per cent. ; in intubation—8299 cases, with 2486 cures, or 29.97 per cent. The result is nearly absolutely the same in both cases. The author reviews the advantages, dangers

and complications of both operations, and concludes that both have their indications. Tracheotomy is sometimes necessary after intubation, when the asphyxia is not relieved. Of 769 cases of intubation, secondary tracheotomy has been practised 136 times as a last resource, and has given ten cures.

A. Cartaz.

Bramwell, Byrom (Edinburgh).—*Two Cases of Lupus treated by Thyroid Extract.* "Brit. Med. Journ.," April 14, 1894.

THE author was led to use the extract for two reasons—one a purely experimental reason, and the other induced by the consideration that seeing that myxœdematous patients often die from tuberculosis, and that these recover through use of the extract, this may equally benefit lupus, a tuberculosis of the skin. In the two cases, although a cure has not been effected, yet satisfactory progress towards this is quite noticeable.

Wm. Robertson.

MOUTH, TONGUE, PHARYNX, &c.

Butlin (London).—*A Clinical Lecture on a Series of Forty-six Cases of Removal of one half or the whole of the Tongue with One Fatal Result.* "Brit. Med. Journ.," April 14, 1894.

THE method of removal was that of Whitehead. The lingual artery was tied where the disease was at the base of the tongue—the artery also being ligatured where the incision for removing diseased or suspicious glands was favourable. Wounds made for the removal of glands, especially of the submaxillary, should be drained for a week or ten days to avoid gravitation abscesses. General sepsis and septic affections of the lungs were the prevalent fatal complications after these operations for removal of the tongue, so that the after-treatment should be directed to maintaining the mouth wound aseptic, and preventing discharges or food entering the air passages. The author prefers iodoform dusting to the mouth wound for a week or ten days. The patient is made to keep his head low and lie on one side (the side to which the greater part of the tongue has been removed), so as to allow free egress to discharges. Where the whole tongue has been removed, and where *Schluckpneumonie* is to be feared, feeding by the stomach tube is to be maintained as long as danger is possible. The great majority of the cases referred to were uncomplicated (*i.e.*, no glands removed or lingual ligatured).

Uncomplicated, 30; removal of one lateral half of tongue, 13; removal of anterior half or two-thirds, 12; removal of whole tongue, 5. The ages varied from thirty-three to seventy-five, and nineteen of them were performed on persons over sixty years of age.

Complicated operations, 16; removal of half of the tongue and lymphatic glands, 2; removal of the whole of the tongue and lymphatic glands, 1; removal of half of the tongue, ligature of lingual in neck, removal of glands, 10; removal of whole tongue, ligature of lingual in neck, etc., 3.

These complicated operations were recovered from with greater difficulty, from infiltration of the wound, etc. *Wm. Robertson.*

Durham, H. E. (London).—*Persistence of the Thyro-glossal Duct.* "Brit. Med. Journ.," April 14, 1894.

THE author described three cases :—

Case I. In a man aged nineteen, where the specimen showed two lumina lined mostly with ciliated epithelium ; at the upper part (level of lower border of hyoid bone) patches of squamous epithelium occurred. Also a small tract of thyroid gland follicles. With the median position these facts indicated thyro-glossal duct origin.

Case II. Removed from a child aged six years. This specimen showed also paired lumina, the epithelium being cylindrical below and squamous above.

Case III. Goitre of the isthmus glandulæ thyroidea, associated with persistent thyro-glossal duct, in a girl aged eighteen. The diagnosis of thyro-glossal duct rested upon the presence of ciliated cavities with tumour, and the section of a process running upon the thyroid cartilage at the operation.

The author also presented a classification of congenital cysts and fistulæ of the mid-line of the neck and of the base of the tongue.

1. Dermoid cysts and fistulæ are due to (*a*) persistence of ductus lingualis, (*b*) persistence of sinus precervicalis, (*c*) of independent origin.

2. Mixed dermoid and mucoid cysts and fistulæ (*a*) due to persistence of ductus thyro-glossus, (*b*) persistence of sinus precervicalis, and both epiblastic and hypoblastic gill pouches.

3. Mucoid cysts and fistulæ (*a*) derived from the mucous glands of ductus lingualis (*b*) due to persistence of ductus thyro-glossus.

It was suggested that many of the cases recorded as branchial fistulæ were rather to be regarded as persistent thyro-glossal ducts. Next, certain modes of origin of median cervical cysts and fistulæ, which had been hypothesized in the past, were dealt with.

These were (*a*) pre-epiglottic mucous glands, (*b*) tracheal and laryngeal hernia, (*c*) bursæ about the hyoid bone. The records of such cases were to be considered doubtful. Bland Sutton pointed out that there was no congenital opening, but that at some time after birth a cyst formed, which was opened, and then remained as a permanent fistula, whereas branchial clefts were always congenital. Hence treatment consisted in radical measures. *Wm. Robertson.*

Raymond, J. H.—*Guaiacol as a Topical Application in the Treatment of Acute Tonsillitis.* "Med. Record," March 24, 1894.

THE author has recently employed guaiacol in the treatment of acute tonsillar affections. In some cases pure guaiacol was applied ; in others, a fifty per cent. solution in oil of sweet almonds. The application, as expected, was attended by slight smarting for a few moments. Cocaine solution, applied previous to the guaiacol spray, appeared to intensify rather than lessen the smarting pain. Guaiacol may be applied either by means of an atomizer, or by means of a cotton swab dipped in the

solution. Care must, of course, be taken that no guaiacol finds its way into the larynx.

W. Milligan.

Joins, H. F.—*Guaiacum in Diseases of the Tonsils and Pharynx.* "Journ. Ophthal., Otol., and Laryngol.," Jan., 1894.

GUAIACUM administered in homœopathic doses, and a homœopath's indications for its exhibition.

R. Luke.

Delap, S. C.—*Treatment of Hypertrophied Tonsils.* "Journ. Ophthal., Otol., and Laryngol.," Jan. 1894.

NOTHING new.

R. Luke.

Mendel.—*A Case of Angina from Copaiba Balsam.* "Bulletin Med.," March 25, 1894.

A YOUNG man, twenty-two years of age, took copaiba and cubeb opiate for some days for blennorrhagic urethritis. On the seventh day appeared a confluent exanthematous rash, simultaneously with redness and congestion of the pharynx, palate, and tonsils. The uvula was enlarged from cedema. Over the whole surface of the mucous membrane of the throat appeared a miliary eruption. The third day after the appearance the eruption disappeared. The patient had constant month-breathing, and consequently chronic pharyngitis, due to post-nasal obstruction from adenoid vegetations.

A. Curtaz.

Williams, C. (Norwich).—*A Case of Stricture of the Œsophagus: Gastrostomy.* "Lancet," Feb. 3, 1894.

MR. WILLIAMS insists on the operation being performed before starvation sets in, so that it can be done in two stages. He thinks it should be performed as readily in malignant disease of the œsophagus as colotomy in malignant disease of the gut. An illustrative case is related in which unfortunately death followed from peritonitis owing to the giving way of the adhesions. The statistics collected by Gross are quoted.

Dundas Grant.

Franks, Kendal (Dublin).—*Fibrous Stricture of the Œsophagus treated by Gastrostomy and Dilatation from below.* "Brit. Med. Journ.," Feb. 3, 1894.

THE case occurred in a lady, aged twenty-four, who since an attack of scarlet fever at the age of seven suffered from dysphagia. During the last two years this difficulty was on the increase, and she was reduced from eight stones to five and a half stones in the last twelve months. A bougie showed an impermeable stricture three inches above the cardiac orifice. On July 6th, 1892, the abdomen was opened in the middle line from the zyphoid cartilage downwards. The stomach, which was very contracted, was opened for an inch, cleaned out, and the finger introduced. Otis's dilating urethrotome, without the blade, was passed along the finger through the stricture, and the stricture was dilated antero-posteriorly, and then laterally. A bougie, passed through the mouth, emerged in the stomach, and by its means strong silk drawn up the œsophagus to the mouth. A plug of gauze tied to this, with another silk ligature at the other end, was drawn backwards and forwards

through the stricture, the lower ligature being cut off. The stomach was immediately closed, returned to the abdomen, and the external wound sutured. The plug was withdrawn in six hours. The patient made an uninterrupted recovery, and was able to go out on the twenty-first day. Two months later the stricture readily admitted a medium-sized bougie. Dilatation, supplemented by electrolysis, was carried out at intervals. Eighteen months after the operation the patient was in perfect health, and had increased in weight from five and a half to eight and a half stones. Twenty-one cases were collected and referred to by the author, in which eight had been done by the immediate method, as in the case recorded. In the remainder a gastric fistula had been first established, and from one to four months subsequently retrograde dilatation of the oesophagus, either by Hagenback's or some other method, had been carried out. The author favours the immediate method in all cases of impermeable fibrous stricture, except after extensive injuries involving a great length of the tube, when immediate dilatation would be impracticable. The operation was devised and first performed by Loreta in 1883.

Wm. Robertson.

N O S E, &c.

Gaube. — *Actinomycosis of the Face cured by Iodide of Potassium.* Union Med. du Nord-Est, March, 1894.

AN interesting report of the case of a girl eighteen years of age. Three months ago there occurred tumefaction of the left maxillary and genial regions. At first it appeared to be like a dental periostitis. Dentition was in a bad state. There were carious teeth and fungous gingivitis. When the patient came into the hospital the tumour was considerable, and the skin blue-violet in colour, and there was engorgement of the sub-maxillary glands. An exploratory puncture gave exit to a small quantity of liquid containing yellow grains. The actinomycotic nature of the bodies was afterwards confirmed by histological examination and bacteriological cultures. The author proposed a radical operation, which was declined by the patient. She then took iodide of potassium, three grammes a day. A fortnight later, suppuration occurred in the tumour, and a small abscess opened with discharge of pus and yellow patches of actinomyces. After two months complete cure resulted. *A. Cartaz.*

Jones, Lewis (London).—*Paralysis of the Sterno-Mastoid, and Trapezius, of Right Side of Face and Deafness.* "Brit. Med. Journ.," April 21, 1894.

THIS occurred in a girl aged nineteen. The soft palate was not affected. The history of the onset was vague. The author pointed out that the association of paralysis of the seventh cranial with the spinal accessory nerve was unusual. Dr. Beevor supposed that the symptoms were due to pressure on the facial and auditory nerves, and pressure lower down on the spinal accessory. The accessory to the vagus was not involved, as

witness no affection of palate, nor was the hypoglossus. Dr. Guthrie supposed a lesion situated at the posterior part of the petrous bone extending down to the foramen magnum. The pressure might be due to some inflammatory affection of neighbouring bone. *Wm. Robertson.*

Martin, George.—*Empyema of the Frontal Sinus cured by Antiseptic Injections.* Soc. de Med. de Bordeaux, April 20, 1894.

THE empyema has been treated by direct catheterism through the nasal ostium, and antiseptic injections of iodoform, glycerine, solutions of nitrate of silver, etc. Cure resulted in four months, after eighty injections.

A. Cartaz.

Kellcog, F. B.—*Empyema of the Nasal Accessory Sinuses.* "Journ. Ophthal., Otol., and Laryngol.," Jan., 1894.

THE author makes the unilateral discharge of pus—offensive to the patient as well as others—the preliminary point in diagnosing empyema of the antrum, also adding caries of the bicuspid or molar as additional evidence, and the presence of pus between the middle turbinated and the wall of the nose; other subjective symptoms and transillumination he does not place reliance on. Three cases are described in detail.

R. Lake.

Moxham, Stickney.—*Acute Inflammation of the Antrum of Highmore after Influenza.* "Brit. Med. Journ.," Feb. 24, 1894.

A SIMILAR experience on the part of Dr. Moxham personally to that recorded by Dr. Semon (*vide infra*).

Wm. Robertson.

Griffin, Harrison.—*Abscess of the Antrum of Highmore, with Cases and their Treatment.* "Med. Record," March 31, 1894.

OF the various ways in which access to the maxillary antrum may be gained, the author prefers making an opening in the alveolus. After thorough cleansing, the cavity may be packed with iodoform gauze, and good results are claimed by some of those who follow this particular method. Local injections into the cavity are useful, and the author prefers solutions of peroxide of hydrogen for this purpose. He uses it from one-fifth to one-half strength, and, in some cases, even full strength solutions. After the injection with the peroxide solution, a lotion of iodoform, suspended in alboline oil (gr. x. to ʒi.) is syringed into the part. This forms a covering of iodoform all over the lining membrane of the antrum, and, according to the author's experience, rapid improvement follows.

The parts should always be kept well open until all signs of purulency have disappeared.

W. Milligan.

Semon, Felix (London).—*Acute Inflammation of the Left Antrum of Highmore after Influenza.* "Brit. Med. Journ.," Feb. 3, 1894.

THIS article forms an interesting account by the author of a personal experience of an attack of acute inflammation of the antrum complicating influenza. There was considerable coryza, with watery discharge from both nostrils, followed by sensation of fulness in the left cheek, increasing to a sense of intolerable distension of the zygomatic region. The skin

over the part became distinctly swollen and reddened, and tender to the touch. Temperature, 100·5°. There was no frontal neuralgia. After these symptoms had lasted twenty-four hours a violent blowing of the nose brought away an ounce of turbid greenish sero-purulent fluid, followed by more of the same on lowering the head inclined to the right. A few hours after this more of the same fluid escaped. Later on a third escape took place. The acute complication now subsided, although two days later another discharge of greenish fluid of a mucoid character took place, which signalized the end of the affection. The author refers to the rarity of an acute affection as compared with the acknowledged frequency of the more chronic condition. Usually the acute type is met with after influenza, and is invariably recovered from. The points worthy of attention are—(1) the sudden and violent increase in pain during sneezing or coughing; (2) the limitation of the pain to the affected region, and, finally, the tendency of influenza to single out the locality of its sequelæ in the most capricious manner in different individuals. In Semon's case the sequelæ observed occurred in the domain of the fifth nerve.

Wm. Robertson.

Browne, Lennox (London).—*Acute Inflammation of the Antrum of Highmore after Influenza*. "Brit. Med. Journ.," March 31, 1894.

THIS occurred in a young woman, aged twenty, six weeks after an attack of influenza. After the acute stage (of influenza) had subsided she suffered severely from toothache, which involved the first and second bicuspid teeth in the upper jaw. Subsequently she experienced severe pain, with swelling of the right cheek, which somewhat subsided on the occurrence of a yellow and rather thin discharge from the right nostril. After removal of the first bicuspid, the antrum was opened through the socket, the cavity was enretted and syringed out with a weak antiseptic solution, and the hole kept open by a hickory wood plug. The cure was complete in a few days, thus distinguishing it from cases of a chronic nature, the characteristic of which is their strong resistance to treatment. Mr. Browne is inclined to think that the malady is not so rare as it is considered.

Wm. Robertson.

Fellows, C. G.—*Syphilis of the Nose*. "Journ. Ophthal., Otol., and Laryngol.," Jan., 1894.

NASAL obstruction recurring after operative measures is said commonly to be of this origin; and the author says in addition, that in syphilitic ozaena the galvano-cautery acts best in his hands.

R. Luke.

Bayenerye.—*Studies on acquired Nasal Syphilis*. Thèse de Paris, 1894.

A REVIEW of the syphilitic lesions of the nose—primary chancre and secondary lesions—which the author classifies under two forms, erythematous and ulcerating, or *plaques muqueuses*. The tertiary accidents are syphilitic ozaena and gummatous tumours. Nothing new. *A. Cartaz*.

Thibierge.—*Syphilitic Sore of the Mucous Membrane of the Nose*. "Gaz. hebdomad. de Med.," April 28, 1894.

THE report of a case of primary chancre of the left nostril in a man fifty-two years of age. The cause of the infection remains unknown.

The diagnosis was particularly difficult owing to considerable inflammation of the surrounding parts of the nose, which inflammation was the result of his occupation (woollen dust), and the employment of wrong medicamentous dressings.

A. Cartaz.

Courtade.—*Nasal Reflex Neuroses.* Soc. de Med. Pratique, April 19, 1894. REPORT of three cases of asthma cured by ablation of mucous polypi.

A. Cartaz.

Rohrer.—*Relations between Affections of the Eye and Diseases of the Nose and Ear.* "Annales d'Oculistique," March, 1894.

A REVIEW of the principal writings and observations upon that subject, and a report of some personal cases.

A. Cartaz.

Hardman, Wm. (Blackpool).—*Is Ozæna Contagious?* "Brit. Med. Journ.," April 21, 1894.

THE question arose over the occurrence of ozæna in a young lady while in a state of impaired health, and who was brought intimately in contact with an elder sister, who suffered from ozæna.

Wm. Robertson.

Kyle, D. B.—*The Etiology, Pathology and Treatment of Ozæna.* "Med. News," May 5, 1894.

IN the author's opinion the condition is secondary to hypertrophic rhinitis. The transition from hypertrophy to atrophy does not, however, of necessity imply the presence of ozæna. In some cases in which the nasal capacity had greatly increased the author could detect no odour whatever. In most of the cases in which odour was detected the bacillus fætidus was found upon microscopic examination of the secretions. In such cases there is usually the history of repeated head colds followed by anterior and posterior nasal discharge. The sécretion, at first thin and slightly coloured, becomes gradually more and more albuminous, and shows a tendency to dry and form crusts. Coexisting with the local symptoms a certain degree of general anæmia is usually present. The plan of treatment which the author has found most efficacious consists in—

1. Thorough spraying of the membrane with some solvent of albuminous material.
2. Washing away this material by means of an alkaline antiseptic solution.
3. Thorough drying of the membrane.
4. The application of a remedial agent which will adhere to the membrane.

The special point in the treatment consists in applying, after the membrane has been thoroughly dried, a stimulating irritating substance which will establish an acute inflammation of the parts. When a copious watery discharge has lasted for at least ten days a stimulating antiseptic solution should be used. As a solvent for the albuminous material, a fifteen volume solution of peroxide of hydrogen is perhaps the best. Oil of mustard (gtt. vi-viii.— $\bar{3}$ i.) in benzoinol or liquid albolin, applied by means of an atomizer, acts as an admirable irritant. The patient's general health should be carefully attended to at the same time. *W. Milligan.*

Fréche.—*Complete Occlusion of the Choane.* Soc. d'Anat. de Bordeaux, April 23, 1894.

EXHIBITION of a patient treated for an occlusion of both posterior nares. The orifice was re-established by multiple incisions, drainage, and frequent passage of Benique's tubes. The author thinks the ease dependent upon hereditary syphilis. *A. Cartaz.*

Sheild, Marmaduke (London).—*Chloroform in Nasal Growths.* "Lancet," Feb. 3, 1894.

MR. SHEILD contends that large and tough adenoid masses will certainly for most operators require "a longer period of anæsthesia than it is well to attempt to procure by nitrous oxide gas." He holds that it is necessary to extirpate the adenoid tissue completely to prevent fresh budding. He favours the use of ether preceded by gas, considers the sitting posture the most dangerous, and makes the very valuable statement that if the patient be allowed to take half a dozen respirations before the operation is commenced it will lessen the amount of blood lost. *Dundas Grant.*

Collier, Mayo (London).—*Chloroform in Nasal Growths.* "Lancet," Feb. 3, 1894.

MR. COLLIER facetiously formulates the view that "the most desirable "anæsthetic in a large majority of the minor operations on the throat, "post-nasal space and nose is no anæsthetic at all," and further remarks that a four per cent. solution of cocaine will produce all the anæsthesia required in ordinary cases with an ordinarily skilled operator. He protests against the administration of an anæsthetic for little surgical procedures that involve not pain, but slight discomfort. [These views will be only of doubtful acceptability to patients.] *Dundas Grant.*

Holloway, W. (London).—*Chloroform in Nasal Growths.* "Lancet," Feb. 3, 1894.

DR. HOLLOWAY replies to several writers who have commented on his statements, pointing out the possibility of waiting for the cessation of hæmorrhage from the tonsils and then practising a second administration of gas for the removal of the adenoids. *Dundas Grant.*

L A R Y N X.

Grayson, C. P.—*Carcinoma of the Larynx with consecutive Epithelioma of the Lip.* "Med. News," April 7, 1894.

THE author points out that metastasis associated with laryngeal cancer is of very rare occurrence. Glandular involvement is a late feature of malignant disease of the larynx, usually not making its appearance until ulceration has existed for some time.

The patient, a married man, aged thirty-four, had until the present illness enjoyed uninterrupted good health.

In December, 1891, he had a severe attack of influenza. This was followed in December, 1892, by another attack, of briefer duration, however, than the first. Following this attack his throat began to be irritable. A few months after this he came under the author's notice. On examination the two ary-epiglottic folds were seen to be much swollen. The right ventricular band was deeply ulcerated, the lower border of the ulcer being lost to view in the subglottic space. Upon the left side the mucous membrane was infiltrated, but no ulceration was present. In addition to the laryngeal trouble a circular ulcer, about eight millimètres in diameter, was found upon the inner surface of the right lip to the right of the middle line. Treatment was at once adopted, but in spite of everything the ulceration increased and the submaxillary glands became enlarged.

W. Milligan.

Moritz, Siegmund.—*The Laryngeal Manifestations of Locomotor Ataxy.* "Med. Chronicle," May, 1894.

In this interesting paper the author classifies the symptoms which precede or accompany the other manifestations of locomotor ataxy in the following way :—

1. Disturbance of co-ordination in the respiratory function or phonation, a true ataxy of the vocal cords.
2. Spasmodic affections, the so-called "laryngeal crises."
3. Motor paralysis of laryngeal muscles.
4. Paræsthesia, hyperæsthesia, or anæsthesia of the laryngeal mucous membrane.

An ataxic condition of the vocal cords is perhaps one of the earliest laryngeal signs of locomotor ataxy. In some cases the patient suddenly and unexpectedly loses his voice, or at least the power of articulating, and the voice becomes thick, dull, and discordant as though the vocal cords did not act in unison. Krause, who was the first to observe this interrupted movement of the vocal cords during adduction and abduction, describes the cords as being suddenly approximated, then remaining still in a semi-adducted position, and then approximated in the median position.

The cords, after having been driven together with great force, recoiled during abduction into the most extreme inspiratory position.

The laryngeal crises are characterized by their spasmodic nature. Occasionally they are attended by vertigo, profuse perspirations, lightning pains in the extremities, pains in the back, etc. The laryngeal crisis is seldom fatal. These attacks may come on very frequently or there may be only one or two during the whole course of the disease.

Laryngeal paralyses are frequently met with as signs of locomotor ataxy. Burger, in an analysis of eighty-four cases of laryngeal paralysis in ataxy, summarizes the results as follows :—

Abductor paralysis, bilateral 46, unilateral 11 ; paralysis of abductor and of thyro-arytenoid muscles, 8 cases ; complete paralysis of recurrent nerve, 6 cases.

In cases where *post-mortem* examinations have been made changes have been found in the medulla oblongata. These changes consisted in

the presence of foci of degeneration in the nuclei of the spinal accessory and vagus nerve, in the posterior pyramidal tracts, and in the floor of the fourth ventricle. Degenerative changes were also found in the peripheral laryngeal nerves, the vagus and the recurrent. The laryngeus superior was usually unaffected. In a few cases the postici muscles were found degenerated.

W. Milligan.

Stewart, T. M. — *Laryngitis in Females*. "Journ. Ophthal., Otol., and Laryngol.," Jan., 1894.

A NOTE on the connection between menstrual and other uterine disturbances and laryngitis in females, urging attention to these troubles, if present, as an aid to the cure of the laryngeal disorder. He also notes the condition of laryngeal spasm caused by applications to the endometrium.

R. Lake.

Vaubin—*Changes in the Respiratory Murmur in cases of Laryngeal Diseases*. "Revue Méd. Franche Comté," June, 1893.

IN a tubercular patient, with ulceration of the arytenoid fold, tumefaction of ventricular bands and perichondritis, during auscultation there was a complete absence of respiratory murmur, and other signs of pulmonary consumption. The pulmonary disease was very pronounced. Some days later an attack of vomiting, with considerable purulent discharge, left a large cavity at the apex of the lungs. Vaubin thinks that in some cases the diminishing or disappearance of respiratory murmurs during auscultation may be the result of some laryngeal obstacle, even though slight.

A. Cartaz.

Barling (Birmingham).—*Larynx: Specimen*. "Brit. Med. Journ.," Feb. 24, 1894.

THE larynx was taken from a middle-aged man, the subject of old phthisis. The patient suffered from laryngeal obstruction, due to extensive tuberculous disease of the ary-epiglottic folds and the inter-arytenoid space. Tracheotomy was decided on, but the man died during the night, apparently from syncope.

Wm. Robertson.

Mackenzie, Hunter (Edinburgh).—*Some Clinical Observations on the Bacillus of Tubercle*. "Brit. Med. Journ.," March 3, 1894.

IN the course of his remarks the author states "it may be taken as a maxim that the higher up the locus of the bacilli in the respiratory tract the more unfavourable is the prognosis. Thus, when the larynx is their seat the prognosis is more grave than when the lungs alone are affected, and a pharyngeal implication is the most unfavourable of all." One might expect the opposite to hold good, and that the more accessible the disease the more favourable it ought to be. A simple chronic laryngitis may become tuberculous, an occurrence which in the first instance is revealed by the sputum only. In considering the question of the diagnosis of laryngeal phthisis from the laryngoscopic characters, and also from the presence of tubercle bacilli in the sputum, it ought not to be lost sight of that, as one writer (Ruehle) puts it, "the larynx is the locality *par excellence* in which syphilis and phthisis intermingle and intersect each other." The possibility of syphilis being present

in apparently pure laryngeal phthisis, with tubercle bacillary sputum, ought always, therefore, to be borne in mind. *Wm. Robertson.*

Harris, Thomas (Manchester).—*Neurosis of Larynx*. "Brit. Med. Journ.," Feb. 3, 1894.

THIS occurred in a man, aged fifty-five, who three months before had had shortness of breath, and in whom a deep expiration was accompanied by marked stridor, the inspiration being also slightly stridulous. The larynx was perfectly healthy, and presented no paralysis of the abductor or other muscles. The man presented well-marked tracheal tugging, also very slight pulsation over the manubrium sterni, which was only visible at the end of expiration, and a markedly accentuated second aortic sound. Dr. Harris mentioned two other cases of expiratory stridor; in both cases a sacculated aneurism of the aorta was found, which markedly compressed the trachea. The present case was referred to the same cause—viz., the aneurism being so placed that greater pressure was exerted on the trachea and greater stenosis caused, during expiration, than during inspiration. *Wm. Robertson.*

Donilles.—*Foreign Body in the Respiratory Tract in a Child—Expulsion of the Body during Vomiting—Death from Exhaustion*. "Dauphiné Méd.," Feb., 1894.

THE title indicates the case.

A. Cartaz.

EARS.

Lake (London). — *A Modified Aural Speculum*. "Brit. Med. Journ.," Feb. 3, 1894.

THIS is a speculum for the ear made of the same materials used in the manufacture of Fergusson's vaginal speculum. Increased reflective power, ability to use caustics innocuously (to speculum), and a good direct light to do away with the use of a reflector, are the advantages claimed.

Wm. Robertson.

Lund (Manchester). — *An Ear Syringe Guard*. "Brit. Med. Journ.," Feb. 3, 1894.

THE principal feature of this is a guard mounted on the nozzle of the syringe. This guard rests on the temple in front and behind on the mastoid. Through an aperture in the guard the front of the nozzle is passed to the distance required by screw action. The guard is fixed by the finger and thumb during use. [The only drawback is that the guard obscures the view of the meatus and the direction of its axis.—REP.]

Wm. Robertson.

Bissell, E. J. — *Aural Massage*. "Journ. Ophthal., Otol., and Laryngol.," Jan., 1894.

THE author uses a telephone-receiver attached to a Götzel-battery, which gives a large range of vibrations by means of a ribbon rheotome, which can vary from sixty to twenty thousand per minute. *R. Lake.*

Stewart (Nottingham). — *Eustachian Obstruction*. "Brit. Med. Journ.," Feb. 3, 1894.

THE most prominent symptom was deafness, temporary or permanent. The chief causes were catarrh of the middle ear, dry, mucous or purulent, vegetations in the naso-pharynx, or polypoid or other obstruction of the nose. For vegetations, Dr. Stewart proposed to have the patient lightly anesthetized, and to remove the growths by the enrette. *Wm. Robertson.*

Ménière (Paris). — *A Case of Revolver-shot in the Ear*. "Gaz. des Hôp.," Feb. 1, 1894.

THE writer communicates his observations on a young man who received a revolver-shot in the right ear, the muzzle being introduced into the concha. The bullet was of the diameter of nine millimetres. The medical man who was called arrived twenty minutes after the accident, and found a flow of blood from the ear and the mouth. The bullet was found in the middle of the sanguinolent matters vomited into the bed. There was facial paralysis. The ear was not examined, and the subsequent course was favourable. Thirteen days after the accident Dr. Ménière saw the patient. He noticed that the orifice of the meatus presented no trace of tearing and that it was simply blackened; the meatus itself was also blackened, and a portion of it had burst under the pressure of the gases. Some rags of membrane were all that remained of the tympanum. In front and below the tissues were torn, and there was a loss of tissue. Injections into the ear passed in part into the throat. The projectile had found its way out by the nasal pharynx, and had been spat out by the patient.

Loud voice was heard at four mètres. Antiseptic treatment was carried out, the meatus cicatrized and contracted till soon there remained nothing but a fistula of scarcely one millimètre in diameter; the purulent discharge diminished more and more, but loud voice was not heard further than two metres. Finally the passage contracted until it was completely closed.

The author calls attention to the little disorganization produced by a bullet which destroyed the facial nerve, which glanced over the vascular cord in the neck without wounding it, and found its way out by the pharynx. It is equally important to bear in mind the absence of concussion of the internal ear. *Lacourret.*

Thorner, Max. — *Pathological Conditions following Piercing of the Lobules of the Ears*. "Journ. Amer. Med. Assoc.," Jan. 27, 1894.

A SHORT *résumé* of the most important literature on the subject, and a short detailed account of three cases of erysipelas, two of cleft lobule, a paragraph on eczema, one of fibroma, one fibro-chondroma, and one keloid. *R. Lake.*

Hellich, C. H. — *A Case of Otitis Interna Traumatica*. "Journ. Ophthal., Otol., and Laryngol.," Jan., 1894.

THE patient, a child aged five, became deaf after an attack of meningitis, due to a fall; there was also partial aphasia and lateral vertigo; the original injury was a fall on the back of the head. *R. Lake.*

Linnell, E. H.—*Chronic Suppurative Inflammation of the Left Middle Ear; Acute Suppurative Inflammation of the Right Middle Ear; Death from Purulent Meningitis.* "Journ. Ophthal., Otol., and Laryngol.," Jan., 1894.

No operation was undertaken for the intra-cranial trouble, though it existed for twelve days; otherwise the title describes the case. *R. Lake.*

Barker, A. (London).—*Suppuration in the Sulcus Lateralis.* "Clin. Journ.," Feb. 28, 1894.

THIS may lead to many dangers, especially meningitis, cerebral or cerebellar abscess, phlebitis of the lateral sinus, and septicæmia or pyæmia. It generally arises from suppurative disease of the middle ear spreading along the smaller veins, or directly by caries and destruction of bone. Its tendency to occur in chronic rather than acute cases is due to the relatively intact condition of the mucous membrane in the latter. The history of old-standing ear disease should always be investigated. The chief symptoms are a rigor and rise of temperature which oscillates later on, œdema and tenderness of the mastoid region; the middle ear may be blocked or perfectly free. The middle ear should be disinfected and cleared, and leeches should be applied to the mastoid. If the symptoms increase, the mastoid antrum must be opened—in adults the cells also—and if no sufficient focus of pus is found, the opening must be extended into the lateral sulcus, and any pus allowed to escape freely. If the sinus is on pressure with a probe found to be thrombosed, it should be exposed above the thrombus and ligatured, then the internal jugular should be ligatured, the sinus incised, cleared of thrombus, cleansed and, if necessary, drained. It is most important to do nothing until the middle ear has been thoroughly cleansed out—by drying, mopping out with perchloride of iron and dusting with iodoform for a few days. Mr. Barker has seen "the most virulent conditions" induced "by meddling with the ear when it was in a septic condition." He protests against the routine practice of at once opening the mastoid in all cases of suppuration of the middle ear with high temperature. *Dundas Grant.*

Courtade.—*A New Treatment for Abscesses in the External Auditory Meatus by means of Intubation.* Société de Therapeutique, Feb. 4, 1894.

INTUBATION consists of the introduction into the external meatus of an india-rubber tube which is designed to play at the same time the part of drain and of permanent dilator. This treatment has been employed in a pretty considerable number of patients affected with follicular abscesses or with furuncles of the meatus, and has given remarkable results. Sleep, which had disappeared for from a week to a fortnight, owing to the frightful pain, returned as soon as intubation was practised. Recovery was effected, on an average, in from eight to ten days.

Intubation has several advantages which ought to be considered in carrying out treatment. In the first place, it restores to its normal diameter the canal, previously more or less obliterated by swelling. In addition, when the meatus is obstructed the pus has no sufficient means of exit; it stagnates in the canal, and thus becomes a constant source of

infection. In this last condition, an injection forced into the meatus provokes new outbreaks, due, probably, to the driving in of the pus which cannot be eliminated. Intubation brings about the disappearance of this inconvenience and renders these injections useful as well as indispensable. In addition, the tube by the eccentric compression which it exercises upon the walls, causes the disappearance of the infiltration. Finally, it does away with the terrible pain which prevents the patient from sleeping. After some days of dilatation the tube can be removed, and a tampon of iodoform gauze put in its place to keep up the dilatation and to make certain of the antiseptic of the part. The intubation is useless when the abscess, being of considerable size, is visible from the exterior. This ought then to be opened by means of the bistoury, so that the pus may have an easy outflow. It is also useless in cases where the abscess commences deeply in the thickness of the soft walls of the meatus, a case in which it is often impossible in the earlier days to determine its exact site; but at a later period, when the inflammation is localized and produces pronounced bulging, intubation would be useful if the abscess cavity lies in the deeper parts of the narrowed meatus. Intubation is again indicated whenever the auditory meatus is swollen as it is in otitis externa, either primary, or secondary to acute suppuration of the middle ear, and when the narrowing of the canal prevents the injections from penetrating to the proper depth.

After the operation of separation of the auricle, a drainage-tube of the diameter of the meatus is inserted so as to prevent the displacement of the organ, and to offer opposition to the consecutive cicatricial contraction of the passage.

Lacoarret.

Annandale, McBride, etc. (Edinburgh). — *Intra-Cranial Surgery*. "Brit. Med. Journ.," Feb. 17, 1894.

As regards middle-ear disease, Prof. Annandale remarks (1) that patients so suffering were liable to certain risks with which all were familiar; (2) these risks might involve suppuration, extending to the mastoid or even to the cerebral sinuses; (3) the temporo-sphenoidal lobe was most commonly first affected, then the rest of the cerebrum, and then the cerebellum; (4) localized ear symptoms were not usually present; (5) incision should be made at the point of suggestion. Dr. McBride, in alluding to the subject, stated that the cases most frequently grouped themselves round meningitis, sinus phlebitis or hæmorrhage. Evidence of past or present ear disease might not be obtained. Otitis media with bulged membrane was suggestive. Acute otitis media following influenza might give rise to symptoms of intra-cranial mischief, and yet all these passed off without interference. If the case were of a more serious type great pain existed, and there might be tenderness. On external examination perforation (*membrana tympani*) might be found, and it was supposed that a small perforation was more serious than a large one. The malleus might be largely exposed. When danger was threatened from an otorrhœa the discharge often lessened or ceased. If intra-cranial disease resulted from ear disease there might be local tenderness or external swelling. If deep-seated pain in the ear, with rigors, existed, then

swelling outside was rather a favourable sign than otherwise. The pain might be followed by vomiting, etc. The question of meningitis *versus* local disease had then to be considered.

Wm. Robertson.

McBride (Edinburgh). — *The Diagnosis and Prophylaxis of Intra-Cranial Complications from Ear Disease.* "Edinburgh Med. Journ.," April, 1894.

THIS paper forms a contribution from the aural point of view to a discussion introduced by Prof. Aunandale "on intra-cranial surgery." Prefacing his remarks by alluding to the three intra-cranial dangers from ear disease—viz., meningitis, rachitis of the cerebral sinuses, especially the sigmoid, and abscess—the author has in a few paragraphs very clearly summarized the symptomology and diagnosis of those conditions within the ear likely to become propagated to neighbouring intra-cranial tissues. The remarks are so thoroughly practical and minute in detail that only those who are conversant with the subject will recognize their value. The importance of carefully analyzing the answers given by patients to the question "Have you had a 'running ear'?" is not overlooked, while the necessity of making a careful objective examination of the ear in a patient with head symptoms likely to proceed from ear disease is prominently noticed.

Due reference is made to the so-called "head symptoms" often observed in acute otitis media, which subside and disappear without operative interference, except in influenza, where acute otitis media may be followed by implication of the temporal bone, with all its attendant risks. Dr. McBride has never been able to convince himself that perforations of Shrapnell's membrane are more often causes of intra complications than other forms. The presence of granulations in a diseased ear is strongly suggestive of defective drainage, and the diagnosis of a dangerous ear lesion is furnished if the probe detects dead bone through a fistula in the posterior wall of the meatus. The same remark applies to the discovery of cholesteatomatous masses in a diseased middle ear. A large perforation in the membrana tympanum at its lower part is not so suggestive of intra trouble, but in any case where factor of the discharge is marked the probability of intra extension is increased. Pain in the ear or over the mastoid is considered an early manifestation of extension. Pain and swelling over the ear rather point to local trouble, while tenderness without any external evidence points to deep otitis. Pain in the ear, diffuse headache and vomiting indicate drainage. It is impossible often to distinguish between commencing intra-cranial mischief and retention of pus in the middle ear. Both conditions give rise to pain, rigors and vomiting, in both giddiness may exist, and optic neuritis is present in cases that recover without operation, and absent in the graver condition.

The indication, and one that should be clearly understood, is to establish drainage from the middle ear, and if serious symptoms continue, then we may suspect that the intra-cranial structures have become implicated. Face to face with intra-cranial complications, it is difficult to say which of the three usual occurrences there is the shape. All three may coexist in a case, while two of these conditions still more frequently

do so. If we find very marked fluctuations of temperature within short periods, and if rigors be severe and frequent, associated with perspirations, we may suspect septic thrombosis, which, in most cases, has involved the sigmoid sinus. The diagnosis of cerebral abscess rests on evidence from the pulse, temperature, and percussion tenderness. Pulse and temperature are the most important. If both be persistently subnormal, strong probability points to a localized collection of pus. The following complex of symptoms point to chronic abscess, viz., (1) pain in one ear, the seat of suppuration; (2) optic neuritis; (3) subnormal pulse and temperature and continuous headache. Is the pus in the cerebrum or cerebellum? Marked implication of the mastoid region indicates the cerebellum more than where the symptoms are confined to the tympanum. The author now refers to the prophylaxis of intra-cranial complications, due to suppurative middle ear diseases. Such prophylactic operations are—excision of drumhead and ossicles; opening the mastoid antrum; Stacke's operation and its modifications.

Wm. Robertson.

REVIEW.

Squire.—*The Hygienic Prevention of Consumption.* By J. EDWARD SQUIRE, M.D. (London). Crown octavo, 193 pages. London: Charles Griffin. 1893.

AFTER adducing the now readily accepted proofs of the dependence of tuberculosis on the presence of the specific bacillus, the various channels of entrance of the micro-organism into the body are discussed, including injected food or air, inoculation, and the very rare congenital infection.

The moderate importance attached to hereditary transmission is indicated in the following extract:—"When we speak of heredity in consumption, we can only refer to an inherited predisposition to take the disease, if exposed to the determining cause—a diathesis which may be modified or corrected by the mode of life of the individual" (p. 28). This is the keynote of the writer's acceptable doctrine, which is calculated to inspire comfort, hope, and courage where only despair was formerly possible. The various causes of acquisition of general and local predisposition are not discussed. The means of prevention are studied in relation to the various periods of life—infancy, childhood, school-life, manhood, and age, the circumstances of air, food, dress, occupation, exercise, and marriage receiving full consideration.

The very important subject of the prevention of consumption in the family, when one member of the household is consumptive, is treated under the heads of (1) *Hygienic Management of the House*—ventilation, lighting, dusting with a damp cloth, warming; (2) *Special Precautions for the Invalid*—disposal of the sputa, avoidance of infection by the breath or the air of the sick-room; (3) *Precautions for the Remainder of the Household*—contact with the patient, kissing, &c. Two chapters are devoted to State interference in the prevention of the spread of the

disease. The section on the hygienic management of early consumption is very suitably preluded by a chapter on the curability of the disease. Those on climatic treatment and travelling for health are valuable in view of the attention paid, not merely to the natural, but also to the artificial conditions—crowding, drainage, accommodation, recreation, cookery, &c. — which the patient has to face. A short concluding chapter is devoted to a semi-popular exposition of the symptoms of consumption, in which Dr. Squire has carefully and successfully avoided the snares into which writers whose standard of professional ethics is less rigid are so apt to fall. The general tone of the book is judicial, and the principle of “moderation in all things” which pervades it will commend it to most readers.

Dundas Grant.

NOTE.

THE SIXTEENTH ANNUAL CONGRESS OF THE AMERICAN LARYNGOLOGICAL ASSOCIATION

Held in Washington, D.C., on May 30th, 31st, and June 1st, 1894.

Wednesday, May 30th.

President's Address. By D. BRYSON DELAVAN, M.D., New York.

PAPERS.

I. Nasal Polypus: its Association with Ethmoiditis, and its Treatment by Resection of the Middle Turbinate Body. W. E. CASSELBERRY, M.D.

II. Papillary Hypertrophy of the Nasal Mucous Membrane compared with a Papillary Fibroma or Papilloma. JONATHAN WRIGHT, M.D.

III. The Use of Metallic Electrodes in the Treatment of Nasal and Post-Nasal Disease. CLARENCE C. RICE, M.D.

IV. Observations on Some of the Results of Cutting Operations on the Nasal Septum. THOS. R. FRENCH, M.D.

V. Some Comments on the Surgery of the Antrum of Highmore. W. H. DALY, M.D.

VI. (a) A Case of Odontoma invading the Antrum of Highmore and Corresponding Nasal Fossa, with the Application of an Improved Method of Anaesthesia adapted to Operations in the Mouth. (b) A Case of Foreign Body (Gold Coin) engaged in the Ventricles of the Larynx. A. W. DE ROALDES, M.D.

VII. Foreign Bodies in the Larynx, with Report of a Case. CHAS. M. SHIELDS, M.D.

Presentation of Instruments.

Election of Fellows, &c.

Thursday, May 31st.

VIII. Three Cases of Papilloma of the Larynx. CHAS. H. KNIGHT, M.D.

IX. Report of a Case of Sarcoma and of one of Epithelioma of the Larynx. ARTHUR AMES BLISS, M.D.

X. A Case of Laryngectomy by a Novel Method. H. L. SWAIN, M.D.

XI. Two Cases of Tumour of the Epiglottis. J. SOLIS-COHEN, M.D.

XII. Singers' Nodes. F. I. KNIGHT, M.D.

Friday, June 1st.

XIII. (a) A Case of Cyst of the Larynx; (b) Pharyngo-mycosis. E. F. INGALS, M.D.

XIV. Exudative Pharyngitis, W. C. GLASGOW, M.D.

XV. A Case of Sarcoma of the Tonsil. A. W. WATSON, M.D.

XVI. Importance of an Early Diagnosis of Malignant Tumours of the Throat. J. W. GLEITSMANN, M.D.

XVII. On Neurasthenic Throat, with Illustrative Cases. W. P. PORCHER, M.D.

XVIII. Contribution to the Study of the Etiology of Rheumatic Affections of the Body due to Tonsillar Diseases. H. L. WAGNER, M.D.

At 2 p.m., in General Session of the Congress, a Discussion on "The Surgery of the Accessory Sinuses of the Nose," conducted under the auspices of the Association by Drs. Bosworth, Bryan, Mackenzie, and Roe.

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ASSOCIATION REPORTS.

ELEVENTH INTERNATIONAL MEDICAL CONGRESS
IN ROME.

SECTION OF LARYNGOLOGY.

(Continued.)

HISTOLOGICAL NOTE OF A CASE OF PACHYDERMIA
LARYNGIS.

By Dr. ANTONIO DAMIENO (Naples).

I have repeated my histological examination of another piece removed by Prof. Massei, by means of Schroetter's forceps, from the left vocal cord, of oval form, greyish colour, and a few millimètres in thickness. After the usual manipulation and staining with hæmatoxylin and carmine, under a low power, the sections showed a marginal layer of some thickness, while under a higher power one saw a stratified pavement of epithelium becoming changed into an epidermoidal layer with flattened cells without nucleus. Into this layer entered, like so many digitations, the papille; here the preparation appears like a normal section of stratified skin in its epidermoidal layer. To this followed the sub-epithelial stratum, which was entirely infiltrated with round cells, replacing the connective layer which was wanting in my preparations, perhaps because normally in the cord little or no connective tissue exists—so much so, that the mucous membrane may be found almost in contact with the perichondrium. This fact confirms once

more the view that pathological thickening of the laryngeal mucosa is developed only in the parts furnished with pavement epithelium ; and if Flatau has been the first to describe pachydermia of the epiglottis, it is because, as Heymann and more recently Chiari have shown, in the epiglottis one finds some islands of flattened epithelium.

From histological studies and clinical observations I feel myself authorized to face the very serious question of the connection of cancer and pachydermia. Well then, not only do I declare myself opposed to the idea of Klebs, but I have arrived at the conclusion that pachydermia and cancer are two different processes. In those cases in which this terrible metamorphosis has been verified, I am compelled to hold that the cancer was already in existence from the very commencement, under the superficial form of pachydermia. In cancer there is true epithelial proliferation, the cellular nuclei being most active, the epithelial products penetrate everywhere in the lymphatic vessels and blood stream. In pachydermia, on the contrary, there is no true proliferation, although there is hypertrophy of the pavement epithelium, such as takes place in a corn ; its tendency is rather to push more towards the exterior, and the cellular nuclei become altered and atrophied, and finish by disappearing.

SYPHILO-TUBERCULOSIS OF THE LARYNX.

By Dr. ANTONIO DAMIENO (Naples).

In the meetings of our Society of Laryngology, held in Siena and Rome, when discussing this subject my colleague, Dr. Masini, showed that he was little favourable to the idea, saying that in his practice Prof. Origine had never been able to demonstrate the fusion and the transformation of one malady into the other.

This year I have tried to study the question from the histological point of view, but as a result of my investigations I am convinced that histology cannot serve in the solution of the question. Can we find it easy to distinguish the syphilitic from the tubercular infiltration, with regard to its coloration, aspect or situation, or from microscopic results, which change greatly with the death of the tissue and with the special manipulations and stainings employed? The same holds good for ulceration. The differential characteristics are : 1. Tendency to irritation more ready in a syphilitic lesion, less so in a tubercular ; 2. Presence of giant cells more marked in tubercular lesions, less so in syphilitic.

Now, a question of simply more or less cannot be enough to give an absolute essential character, since many giant cells are met with in syphilis, as well as in sarcomata, etc.

Pathological anatomy confirms my point of view when it teaches us that the syphilitic like the tubercular lesion is nothing else than a granuloma. But are we from this authorized to deny the existence of this morbid state? I believe not, since only bacteriology can give the last word in the argument. As bacteriology gives us examples of micro-organisms which exist well together, so also it shows instances of antagonism which reaches such a point that one germ destroys the

other. A similar condition should occur when a tubercular lesion develops on the top of a syphilitic one. In conclusion, then, we can admit this morbid form, from the considerations of biology and general pathology, but the certain proof of the fact can only and solely be given by bacteriology.

THE TREATMENT OF NASAL HÆMORRHAGE.

By Dr. IGNAZIO DIONISIO,

Teacher of Rhino-Laryngology in the University of Turin.

As a rule, in the hæmorrhages which do not yield to the usual simple methods of treatment (cold and hot douches, astringent liquids, etc.), one has recourse to plugging the posterior choanæ with Bellocq's catheter. It is well known to what complications the patient is exposed during the necessary manœuvres for correctly placing a pad of gauze in the posterior nares, and what are the disturbances produced by this foreign body in a region so sensitive and delicate as the upper part of the pharynx. The more serious inconvenience for the patient is the obstacle to respiration through both nares, since generally the plug which blocks one choana projects across the septum so as to interfere with the free circulation of air. The plugging of the naso-pharynx is not only disagreeable, but in certain cases it also exposes the individual to dangers which cannot be regarded as negligible. Cases have been described in which serious results occurred, such as otitis media with inflammation of the mastoid, pyæmia, gangrene of the fauces, tetanus, erysipelas, etc.

For some time past, search has been made for a substitute more simple, less painful, and free from the above dangers. Instruments were proposed by T. P. Frank, Saint-Auge, Hüchenmeister, Clonet, Engliſch, Manieri Antoni, consisting of a bag made of pig's intestine or india-rubber. These bags were introduced into the nose, and distended with air or water so as to occlude both the anterior and posterior nares. These instruments, logical in idea, have not up to the present had any great practical use, perhaps because the various authors limited themselves to designing them without practically trying them on a large scale, and without introducing those little modifications which only a long experience can suggest.

Four years ago I presented to the Academy a tampon-canula analogous to the tracheal one of Trendelenberg, consisting of a delicate metal tube covered with an india-rubber shirt, hermetically fixed to the two extremities of the canula. Introducing this into the nasal cavity and distending the india-rubber bag with air or liquid, the anterior and posterior nares were plugged, while the passage of air through the canula remained open.

Numerous experiments which I have since made, and the communications received from various colleagues who have adopted the apparatus, convinced me more and more of the advantages offered by plugging with india-rubber bags, as compared with the older method by Bellocq's catheter, and I felt the necessity of perfecting the instrument so as to

render it of easier and more certain application. I will briefly describe the new tampon and give the reasons which have led to the various modifications.

The apparatus consists of an india-rubber bag, elliptical in section, larger in its anterior portion, narrow in the middle, and dilated again in the posterior part which communicates with the outer air through a little tube. The walls of the bag are thinner in the anterior part, thicker in the middle and posterior part. A thin metal canula penetrates the bag, on to the part of the canula which remains outside; a thick walled rubber tube is pushed so as to cover the external part of the canula, in such a way that the rubber tube adheres hermetically to the canula.

In order to introduce the apparatus into the nasal cavity, twist the anterior part of the bag around the canula, drawing off the air from the tube by suction, and shut the latter with a small spring clamp. The air being rarefied, the walls of the rubber bag will then remain twisted and wrapped round the canula. The anterior portion of the instrument has then a smaller diameter than an ordinary Bellocq's sound. The apparatus having been disinfected and anointed with an antiseptic pomade, the point is introduced into the nostrils and pushed on until two-thirds of it has penetrated. The clamp is then removed from the tube, and air or liquid is pumped in with a pear-shaped syringe till the rubber bag is so distended as to hermetically occlude the posterior choana and the anterior orifice. It is useless to pump in more liquid or air than is contained in the pear-shaped syringe; the clump is again applied to the tube, and for greater security it can be blocked with a small obturator. After a lapse varying from one to twelve hours, the compression of the plug may be gradually diminished by letting out some of the liquid or air. For greater security the collapsed instrument should remain in the nasal cavity one or two hours longer, and then, if no hæmorrhage appears, it can be removed.

When only used at long intervals, it is well to keep the walls of this bag slightly distended. In this way the india-rubber sac may last for years, and should it get broken the canula can easily be changed into a new one.

The modifications introduced are as follows:—

1. The metal canula is much thinner than in the original model, and only serves to give rigidity and to allow the introduction of liquid or air; it does not serve for respiration. This latter disadvantage is fully compensated for by the smaller volume of the tampon, which can easily penetrate through the choanæ, and also by its greater durability, since the canula does not perforate the bag at the point where it is chiefly distended, and therefore apt to give way.

2. The tube is of considerable thickness, so as to avoid the inconvenience of adhesion of the walls after a long compression from the branches of the pincers.

3. The inventor guarantees a hermetical closure even when air is used to distend the apparatus.

4. The india-rubber bag is narrow in the central portion so as to avoid a useless pressure on the nasal mucous membrane, and the use of the apparatus is thus rendered more tolerable.

ERYSIPELAS of the LARYNX.

By Prof. A. FASANO.

Gentlemen,—In the few words I have to say, I have only a modest object in view—that of reaffirming the little that I had the fortune to develop in this chapter of our specialty by an observation I made last year.

To Prof. Massei is due the merit of having traced the symptomatic phenomena, and given the clinical notes of this disease. Valuable also are the therapeutic indications that he has given us on the method of combating it. Incited, so to speak, by his publication, I devoted myself to bacteriological researches in laryngeal erysipelas—researches which, so far as I am aware, have been only preceded by those of Biondi, Hosik, Schmidt and others who found the streptococcus of Fehleisen. The first mentioned found in the saliva of two patients a streptococcus which, from its morphological characters, completely resembled the coccus erysipelatosus of Fehleisen. In regard to Hosik, his valuable researches are known with regard to the connection between erysipelas and phlegmonous inflammations, and to him we owe the knowledge that morphologically it is impossible to make an exact and absolute distinction between the cocci of erysipelas and pyogenic cocci, and that the diversity is only due to the manner in which they develop in living tissues.

Still, although bacteriological researches up to the present have not passed the above limits, and although not yet able, in a given case, to establish by bacteriological examination whether one has to do with laryngeal erysipelas, in the true sense of the word, or with œdema laryngis or phlegmonous laryngitis, it is certain that the existence of primary laryngeal erysipelas as a distinct malady can no longer be doubted.

Prof. Massei clinically confirmed a suspicion which had been expressed by Virchow, *i.e.*, that in many laryngeal œdemas formerly described by various authors, one had to do with nothing more nor less than primary erysipelas of the larynx in the true sense of the word.

On the 22nd of October of last year I had occasion to observe a child of ten years of age, who, although only ill for a few hours, was in a most serious condition, high fever, difficulty of deglutition, marked dyspnœa, which increased hourly. Until the afternoon of the previous day the child was in excellent health; towards two o'clock he complained of feelings in the throat, and particularly of difficulty in swallowing; from that hour the fever increased so rapidly that he was compelled to take to his bed. Without delay I made a laryngoscopic examination as best I could, and detected an enormous tumefaction of a bright red colour of the epiglottis and ary-epiglottic folds, together with general congestion. In addition, on questioning the parents as to the presence of erysipelas in the house or neighbourhood, I found out that in the room adjoining that of the patient a sister was convalescing from an attack of facial erysipelas, and that undoubtedly the child had been in contact with her. In consequence of this history and the laryngoscopic exami-

nation, I made the diagnosis of primary laryngeal erysipelas, and without delay I put in operation the usual treatment. Towards evening I was hastily summoned as the symptoms had become aggravated, and suffocation was threatening. I insisted on the immediate necessity of tracheotomy, but the parents were so opposed to it that nothing was left but to perform intubation, which I did in the midst of every kind of difficulty. The following day the fever declined, and I was more hopeful, but on the evening of the following day the child became worse, and I had to watch him during several hours. The fever increased, and the process showed a tendency to spread downwards, but to this stormy period succeeded a calm, and without entering into the details of the phases of the disease, I need only say that on the fifth day a distinct improvement was noted, continuing during the two following days; so that on the eighth day, the fever having completely disappeared for forty-eight hours, I was able to dispense completely with the intubation, which, in this case, had rendered me excellent service. On the tenth day the child was completely convalescent. Such is the case; I will now permit myself to make a few comments.

Prof. Schroetter in his classical work, when speaking of laryngeal erysipelas, does me the honour to refer to my publication, and on the subject speaks as follows:—"Fasano found the lymphatic vessels of the affected parts full of cocci, which were identical with those which Fehleisen indicated as characteristic of erysipelas. If this observation should be confirmed the particular streptococcus would answer to all the conditions established by Koch to define it as the true pathogenic agent of the disease, and one could then say that only the catarrhal laryngeal affection, œdematous or phlegmonous, in which is found the characteristic streptococcus, really belongs to erysipelas.

"In the opposite case one can give the following interpretation:—In those periods when erysipelas frequently occurs, an individual may accidentally suffer from a sore throat and from purely collateral disturbances, an œdema of the larynx may be produced without having an infective factor or basis, and this would confirm the opinion that a throat with the same pathological formation may be produced by different etiological factors."

With all the respect that I owe to the celebrated Vienna laryngologist, I cannot completely accept his opinion, and I firmly hold that even without the bacteriological examination one can nearly always diagnose with certainty primary erysipelas of the larynx by bearing in mind above all things the salient features described by Prof. Massei—*i.e.*: (1) The swelling of the mucous membrane, which at the beginning is considerable, and which constantly takes, as a starting point, the adenoid tissue at the root of the tongue, spreading thence to the epiglottis and the ary-epiglottic fold. (2) The fever, which from the beginning reaches 104° or 105° F., then declines, and then rises according to the peculiar curve of erysipelas. (3) The facility with which in a short time the swelling migrates from one point to another, always in the continuity of the tissues. From phlegmonous inflammation, also, laryngeal erysipelas can be differentiated without difficulty.

Only a few words, and I shall have finished my modest contribution. At the International Congress at Berlin Dr. Semon, when discussing this point and speaking on the possible pathogenetic identity of this infective process, asserted that bacteriology had not yet furnished us with any data to say if erysipelas of the pharynx and larynx, acute phlegmonous pharyngitis, the angina of Ludovici, and other analogous pathological processes were identical or not. From his personal observation he held that one had to do with identical processes, which were only to be distinguished from one another by their different grades of virulence. If I mistake not, an analogous opinion was expressed by others. Without going into the discussion of the subject here, I would say that until bacteriology has given us such demonstrative proof—and I believe that some time will be required if it is true that we have to do with pathogenic unity—we ought to hold, from our experience in the clinical field, that it is indisputable that there is such a thing as primary laryngeal erysipelas, due to the streptococcus of Fehleisen (as I found), and that this erysipelas has clinical features so marked as to render it easy of diagnosis and differentiation from those other acute infections which are apt to develop in the same anatomical region.

ON VENTRILOQUISM.

By FLATAU and GUTZMANN.

Flatau reports on a research on this subject undertaken by himself and Gutzmann, and carried on up till the present date. This is divided into two parts.

The historical part gives the most thorough description, and the most complete index to the literature of the subject, that has yet appeared.

The experimental part investigates the changes in production of tones and sounds, and in breathing, which characterize ventriloquism. The possibilities of the unconscious production of ventriloquism are considered from a physiological and a pathological point of view; then the conscious production and the method of learning this peculiar accomplishment are thoroughly discussed. Finally comes a description of the means used in arousing and maintaining the illusion, and a discussion of the psychical condition of the listener.

There are co-ordinated changes of phonation and respiration which are necessary, with those of articulation, which, if not necessary, are important. (Experiments on six practised ventriloquists.)

In producing ventriloquial tones the larynx is in the midway position between closure and falsetto-position.

The respiratory changes show regularly during the expiratory phase, with the commencement of the production of the "stomach voice," an inspiratory movement of the regio epigastrica and diaphragm. This is a constant accompaniment of ventriloquial phonation, and in the pauses between two phonation-phases it is either let go or maintained.

During the production of longer strings of words or sentences.

several in- and expiratory phases may be observed in this position—often by palpation. Also in this change in the action of the mechanism of respiratory movement we see a medium between two extremes. The first part of the phase is seen in what occurs at times in ordinary phonation or singing, the intercalation of inspiratory movements, which has been described by Merkel as “phonetic expiration, with bulging out of the hypogastrum.” The other end of the phase is formed by the energetic combined working of the abdominal muscles and of the diaphragm, the action of the abdominal press.

A complete co-ordination of the necessary and essential factors of ventriloquism is present when the vocal cords, sufficiently stretched and damped, are set swinging by the expiratory blast (moved, as above described), and at the same time articulatory changes take place, accompanied by a peculiar alteration of the resonance chambers, which procures the peculiarity of the *timbre*.

For particulars, which it is impossible to give in an extract, Flatau refers to a monograph, to appear in a few days, in which a complete description of the whole of the experiments (Flatau six and Gutzmann six) will be contained.

The chief methods of examination employed were, besides the external, the pharyngoscopic and the laryngoscopic.

1. Respiratory-volumetric method.
2. Pneumographic method.
3. Laryngo-photographic method.

The pharyngoscopic examination was further extended by exhibition of the varying action of the soft palate (by means of Hartmann's apparatus for measuring pressure). Further, the flame-pictures of all the vowels were taken and multiplied. Finally, the chances of error arising from the difficulty of the methods employed, and from a great number of other unsuspected sources, had been minimized by frequent repetition of the experiments.

CROUP AND ALL CROUPOUS DISEASES CURABLE BY PILOCARPIN.

By Dr. CARL SZIKLAI, District Medical Officer in Kis-Koulbor.

“ Ad caedes hominum amphitheatra prisca patebant
Ut discas vivere longum nostra patent.”

Never could this beautiful classical saying (the wise superscription on the pediment of the École de Médecine in Paris) be more justly applied than to this distinguished meeting, whose members have come together for the very purpose of spreading the knowledge how to prolong human life, whether by delaying the tendency to death or by actually decreasing mortality.

On only two grounds is a lecturer justified in making his *début* before this very learned meeting—either he has a new theory to propound, which is both philosophically sound and promises positive results in

practice; or else he has to describe a new method of treatment with perfectly positive results, specially in such cases as were previously not at all or only uncertainly curable.

My thesis seems to me to fulfil both postulates; indeed full account will be taken even of prophylaxis by the method I am about to describe. Firstly, the disease, or rather the group of diseases, which we designate by the general name "croup," has been up till now only uncertainly curable (this can specially truly be said of croup of the larynx): secondly, the treatment about to be described has proved in my hand, during fully two years and in far more than one hundred cases, unconditionally trustworthy and satisfactory; and, finally, I have been enabled in many cases, by preventive measures, to hinder or cut short croupous affections at their very outbreak.

To describe croup, its origin and development, its course and termination, here before this most learned Forum, were indeed to bring owls to Athens. But may I be allowed to make a few remarks on the anatomico-pathological processes to be observed in croup of the larynx, and only so far as may be required to distinguish the same, and keep it quite distinctly apart from diphtheria. For although according to my view these two diseases are radically different processes, still a different view is held even at the present day. While most clinical observers quite correctly differentiate exactly between croup and diphtheria, specially with regard to their localization in the larynx, others hold the unionist view, and maintain that croup of the larynx is of diphtheritic nature, whether it has originated by extension downwards from the primarily affected fauces, or whether it has arisen primarily in the larynx.

It is clear that the appearances in the larynx must be the same in both cases, and naturally stenosis arises in the one case as in the other.

The impeded respiration and all the symptoms caused by and consecutive to it, must be the same; as also the final ending in suffocation and stifling. If, however, the same brilliant result, viz. complete cure, is not obtainable in both diseased processes by one and the same treatment (as it is to be obtained in pure genuine croup), the reason lies as before said entirely in the pathologico-anatomical changes, as these likewise in their place arise in different manner from the certainly different poisons of the two diseased processes.

In croup—that is, still considering croup of the larynx—the transudation oozes on to the surface of the mucous membrane of the larynx, where it immediately coagulates and becomes organized to a thick membrane (Bresgen). This membrane lies upon the surface of the mucous membrane of the larynx, in contrast to that of diphtheria, which at parts penetrates into the deeper layers of the mucous membrane of the larynx, and even right through them into the parenchyma of the larynx. This difference in kind of organization of the deposit is to be seen not only *post-mortem*, but also *in vivo*, in cases that have recovered; it can be recognized with precision on examining both the pharynx and the larynx (by aid of mirror).

In croup after the membranous deposit has been cast off, the mucous membrane of the throat and of the larynx remains more or less injected

but smooth, whereas after a fortunate termination of a case of diphtheria the mucous membrane shows interruptions of continuity—rents—through which the roots of the diphtheritic deposit had penetrated into the deeper parts of the mucous membrane or into the parenchyma of the larynx—or rather through which they had forced their way out.

Further, it is not only the kind of deposit which distinguishes croup from diphtheria, but the course of the disease in itself gives points enough for the differentiation. Thus in croup we find only a comparatively slight febrile disturbance, with a temperature of not much over 38° (100.4° F.), whilst diphtheria, as a decided highly infective disease, shows a temperature never less than 39.8° (103.6° F.), generally indeed even over 40° (104° F.)

Remembering the foregoing, and specially considering the pathologico-anatomical difference between croup and diphtheria of the larynx, we can understand how pilocarpin, which proves a trustworthy and promptly acting curative agent in croup—whether of the larynx or of other organs or parts of organs—should have no effect on diphtheria, specially when we examine more closely the mode and method in which pilocarpin does its work.

The action of pilocarpin in producing sweating and a greatly increased flow of saliva is well known. However taken into the organism, whether swallowed or injected subcutaneously, sweating and spitting commence at once, and in exact proportion to the dose of pilocarpin taken. This effect on sweating and saliva is the visible working of pilocarpin, which can be seen by us. If, then, pilocarpin has this influence on the sweat and salivary glands, why should it not have the same influence on all secretory glands, therefore on those of the mucous membranes of the whole respiratory tract as well as of other organs?

This theoretically plausible argument I have also proved practically to be correct; and now, after two years' experience (partly shared by other colleagues), I can maintain with perfect certainty that pilocarpin is a specific agent, sure and prompt of action, in all those diseases characterized by transudation on to the surface of a mucous membrane with tendency of same to coagulation. As a result of this profuse secretion of mucus after pilocarpin (in laryngeal croup), a regular stream of physiological mucus is poured out between the membrane formed by coagulation of the transudation (laryngitis membranacea) and the mucous membrane on which it lies and to which it closely adheres, which stream undermines and raises the false membrane from the subjacent mucous membrane.

Now this membrane, thus raised from the underlying tissues, acts in the larynx as a foreign body and produces retching, and in many cases suffices to produce actual vomiting, and the patient is saved; or, if in itself not sufficient to produce vomiting, it enables any previously useless emetic to do so, and the loosened membrane is thrown out.

But from the action of pilocarpin we can hope for even more than the elimination of the membrane, because besides this mechanical, pilocarpin has further a chemical action. Should the diseased process not have come to an end with the elimination of the membrane, the pilocarpin robs the

transudation of its fibrin, so that once the membrane is raised it is finally raised, as relapse is absolutely impossible under the use of pilocarpin. At least I myself have never seen it in a single one of my own cases.

As yet we have spoken only of croup in its narrow ordinary sense—*i.e.*, croup of the larynx, but other organs or parts of organs can be affected by diseases of an equally croupous nature: inasmuch as the affected mucous membrane becomes the seat of a fibrinous exudation, which then takes on a shape corresponding to affected structure—viz., tube-shaped, hemispherical or plug-like. We have, for example, taken in anatomical order croupous affections of the eyelids, of the nose, of the Eustachian tube, of the bronchi, of the lungs, of the kidneys, of the bladder, of the uterus—viz., fibrinous or croupous conjunctivitis, rhinitis bronchitis, pneumonia, nephritis, cystitis, endometritis, and in all these croupous diseases pilocarpin will have exactly the same quick and trustworthy action as in croup of the larynx (laryngitis crouposa), which I would call the prototype of croup.

Next to this come bronchitis and pneumonia crouposa, which, endangering life rapidly on account of their acute course, form very satisfactory subjects for treatment by pilocarpin; for also in both these diseases cure is obtainable in the shortest time imaginable, viz., within forty-eight hours. The usual expectorants with febrifuges are to be used, with the simple addition of pilocarpin.

My doses of pilocarpin differ from those previously in use, yet I have never had the opportunity of noting a single alarming symptom. I give the following doses, varying according to the age of the child:—

0—1 year	dose 1—2 centig. piloc. pro. die.
1—3 years.....	„ 2—3 „ „
3—6 „	„ 4 „ „
6—10 „	„ 5 „ „
10—15 „	„ 6—7 „ „
Adults „	„ 8—10 „ „

always combined with the usual medicaments.

The customary medication of croupous diseases thus is changed only in so far as the simple addition of pilocarpin is concerned, and as injurious action is quite excluded if my doses (which have stood two years' test) are adhered to, every doctor may convince himself in the shortest imaginable time of the safe, rapid, and sure action of pilocarpin. The results in many cases are so surprisingly rapid, specially in cases that come early under treatment and have been rightly diagnosed at their beginning—the course of a pneumonia crouposa becoming thoroughly satisfactory after twenty-four to forty-eight hours—that later on doubts will arise as to the correctness of the diagnosis. The time allotted me for this lecture is much too short to permit me to support my claim for the specific as well as quick and sure action of pilocarpin in all croupous diseases, by quotation of numerous illustrative cases. In various articles published by me, both in home and foreign medical papers,¹ and further

¹ "Wiener Med. Presse," 1892, Nos. 51, 52; 1893, No. 9; 1894, Nos. 4, 5. "Közegészségny Közlöny, Budapest," Nos. 8, 9. "Merk's Bulletin," New York, 1893, Juni Heft. "Pester Med. und Chirug. Presse," Budapest, Nos. 6, 22, 23. "Der Aertztliche Praktiker," Berlin, 1893, No. 81. "Aertztliche Central Anzeiger," Wien, 1893, Nos. 21, 34.

in my thesis, a sufficient number of cases in point are thoroughly and exhaustively described.

Let me here describe one case of laryngitis crouposa, and one of pneumonia crouposa, which differed greatly from all other cases I have observed in their extraordinary severity.

I. LARYNGITIS CROUPOSA.

Bitó Etel, four years old, daughter of a smith living in my immediate neighbourhood, was seen by me for the first time at an early hour in the morning. On entering the room (*i.e.*, even from a distance) the diagnosis could be made at once, as the noisy, rattling, heavy respiration allowed of no doubt whatever on that point. Closer examination confirmed the diagnosis of angina, for, besides the above-mentioned respiratory disturbance there were present abdominal respiration, cyanosis indrawing of the intercostal spaces. Examination of the throat, however, showed nothing characteristic, *i.e.*, no deposit on the tonsils, but only a moderate injection of the mucous membrane.

I at once injected hypodermically¹ one centigramme pilocarpin, and explained that the injection would most likely have to be repeated in the evening. At my evening visit at five o'clock, the anxious parents informed me that, as the child showed no signs of improving after the first injection, they had taken it to another doctor, who made the same diagnosis, and declared that the child could not possibly be saved. Although the child's symptoms—as above described—had got worse, I repeated the injection, giving this time one-fifth centigramme pilocarpin, and further ordered that after an hour the child should be given a table-spoonful every ten minutes of the emetic ordered by the other doctor.

At seven in the evening I again visited the sick child: face sunken, quite cyanotic, lips livid, stertorous respiration, tossing to and fro in bed: suddenly it will spring up, then at once with a loud crow falls back in the bed.

The poor child seizes its larynx and tears at it, as if on purpose to remove the hindrance to breathing. The emetic given every ten minutes for the last two hours had as yet produced no vomiting. In spite of the precarious, almost hopeless condition of the child, I still expressed my hope and expectation that it would in the end recover.

An hour later the now despairing father came over to me and besought me to perform tracheotomy (which I had before proposed, but he had refused), as the child was going, and might die at any moment. Scarcely had the poor man expressed this wish, when his weeping and wailing wife rushed in, calling him to come home as the child had just died in her arms.

Now, since the news of the death had been brought me by the mother herself I was bound to believe it, still through the whole of that restless night I could not understand why pilocarpin, which in my seven previous cases of laryngitis crouposa had proved a prompt means of saving life, should have left me in the lurch in this striking case.

And behold! the child had indeed not died. While the father was

¹ In urgent cases I give hypodermic injections of 1 to 1'5 centigramme per dose twice daily.

with me the child had had a violent fit of choking and vomiting, bringing up sticky mucus and membrane-like matter, and thereafter had fallen back in a faint on the bed. The mother had mistaken this "faint" for death, and so rushed after her husband to my house; but, returning to her own dwelling, she had the unspeakable joy to find her child alive (it meantime having come out of the faint), smiling to its parents, and assuring them it was not the least ill now.

In this, as in most cases, there remained hoarseness, but it passed off in about eight days.

In such a case as the above it is impossible to doubt the relation between cause and effect, between curative agent and cure: and pilocarpin must approve itself to every wise and prudent doctor, without exception, as the life-saving treatment in croup and all croupous diseases.

II. PNEUMONIA CROUPOSA.

Frau Rosa Klein, wife of a merchant here, twenty-five years old, became ill on the 8th December. On this day, after having felt unwell for a few days previous, she had a rigor lasting about two hours, accompanied by pricking sensations in the breast. This came on about midday. I saw her for the first time about four o'clock, and found temperature $39^{\circ}8'$, respiration difficult and abrupt, complains of wandering pains in the chest and of irritating cough without expectoration.

Percussion showed nothing abnormal—auscultation, however, harsh, bronchial respiration over the whole extent of both lungs, only behind and below on each side fine crepitation. It was therefore an incipient croupous inflammation of both lungs. I ordered an infusion of digitalis and ipecacuanha $\bar{a}\bar{a}$ $\sigma\bar{\sigma}$ centigrammes, with five grammes antipyrin, to which was added seven centigrammes pilocarpin.

I told the husband my diagnosis and explained, in answer to his questions, that the condition, in view of the inflammation being bilateral, threatened to be very serious, but that I hoped, nevertheless, to be able to abort the illness. According to his wish I declared myself ready to try this, after a consultation. At seven in the evening, Dr. G., of Szegedin, came to the consultation, confirmed my diagnosis of pneumonia crouposa bilateralis incipiens, and approved of my treatment.

Next morning, eight o'clock—temperature $38^{\circ}6'$, no dulness, therefore no plugging, coarse crepitation over the whole back, pains in chest have ceased, medicine used up. I ordered the same infusion, but with the addition of eight centigrammes instead of seven centigrammes pilocarpin.

Two o'clock in the afternoon—temperature normal, crepitation weakened (? gone), general condition good, only disturbed by feeling of weight in stomach and occasional retching.

I now stopped the infusion, as it had already produced its expected results, and ordered morphine. In the evening same condition, retching much less, but not quite stopped.

Going next morning, in reply to an urgent call, I found patient delirious, with at times hallucinations. Temperature $39^{\circ}6'$. Auscultation over right lung, showed in upper lobe bronchial breathing; in middle lobe, weak fine crepitation, and over this spot percussion note was dull.

After the pilocarpin had been stopped at two o'clock in the afternoon, the patient remained quiet, free of fever, and slept well till two o'clock in the morning, *i.e.*, fully twelve hours. So that this sudden rise of temperature, with cerebral symptoms, could not be attributed to any possible harmful action of the pilocarpin, specially as the whole quantity taken was not more than eleven centigrammes (for not more than half of the centigrammes ordered the second time had been used); and further any such ill effects would have appeared immediately after the taking of the last dose of pilocarpin, and certainly not after an interval of twelve hours.

There remained, therefore, nothing but to suppose that deep in the right lung a new portion had inflamed. This opinion was shared by Dr. B., of Mako, who came to a consultation during the forenoon. Treatment ordered: pure digitalis, alternating with antipyrin, 0.5 grains *pro dosi*—of this latter, however, patient took none.

In a few hours (four p.m.) temperature sank to normal, and the cerebral symptoms having disappeared before the beginning of the new treatment, the patient now felt well—and this continued.

The diet of milk and cognac was continued, but on the third day of the illness bouillon and red wine was added. On the fifth day got up for a few hours on to the sofa; on the sixth day patient left bed to return to her duties as housewife.

I cannot omit in this place to express my deepest thanks to Herr Hofrat Dr. Biederl, of Hagenau (Elsass), as also Prof. Escherich, of Graz, for the goodwill with which they undertook to test my treatment of croup; and it is particularly satisfactory to me to be able to quote two such distinguished men in my favour.

Herr Hofrat Biederl writes, on 18th April, as follows:—"I have already begun the experiments with great interest, and in a case of croupous pneumonia have had a splendid result."

Prof. Escherich writes on 11th May, 1893:—"Thanks for your communication. The pilocarpin in non-diphtheritic croup is certainly justified, and I believe that in suitable cases it will render good service by freeing the membrane."

The agreement of these two leaders, and their praise of my treatment of croup, may well insure a thorough objective trial of the same; in which case I look forward calmly but joyfully to the time when it will be adopted and practised by all, and will be recognized as the most satisfactory.

And now for my conclusions. They are—

1. Pilocarpin is a specific for croup, in the widest sense of that word, therefore for all croupous diseases, *e.g.*, croupous laryngitis, croupous bronchitis, croupous pneumonia, croupous nephritis, croupous cystitis, &c., &c.

2. The action of pilocarpin commences at once. In laryngitis crouposa cure is to be obtained in a few hours, in pneumonia crouposa in two or three days.

3. It is indifferent whether the pilocarpin is taken by the mouth or subcutaneously injected; also when applied as suppositories or globuli vaginales, the same result is certain.

4. In urgent cases, with imminent danger to life, *e.g.*, in an advanced stage of laryngitis croaposa, subcutaneous injection is to be preferred to internal administration.

5. By pilocarpin not only is the duration of the disease notably shortened, but the mortality is reduced to 0 per cent.

6. In suitable cases, given early enough, pilocarpin has a preventive action.

7. Pilocarpin can be given up to twice the official dose, without one having to fear any ill effects.

In closing, let me express the hope that I may have justified, before this distinguished meeting, my method of treating croup: that when the present great but groundless fear of pilocarpin shall have disappeared, it (pilocarpin) will be universally used in suitable cases—early enough in the case and in doses proportioned to the age of the patient (as given above), for smaller doses are quite useless. Then will it be admitted, and surely the time is at hand, that my humble efforts have been crowned with success, in that they have extended the realm of medical knowledge, for the good of suffering mankind, *urbi et orbi*.

ON LATENT EMPYEMA OF THE MAXILLARY SINUS.

By Prof. GRADENIGO (Turin).

I have instituted this year a second series of anatomical and pathological researches on the nasal cavities, the accessory sinuses, and on the organ of hearing, being a continuation of the first series, of which I have already published the results.¹ Reserving for another occasion a complete exposition of the result of these researches, I think it is opportune, in consideration of the clinical importance of the subject, to give a *résumé* of as much as refers to the pathology of the antrum of Highmore.

In the first series of observations empyema of the maxillary sinus was met with seventeen times in one hundred and three cases (eighteen per cent.), that is to say, six times bilateral, ten times on the left side, and three times on the right. In this second series of one hundred other cases, I found a muco-purulent collection in the maxillary sinus in twenty-six cases (twenty-six per cent.), *i.e.*, ten times bilateral, eight times on the left, and eight times on the right. The proportion is not equal in the two sexes: in sixty men the lesion occurred eighteen times (thirty per cent.), in forty women eight times (twenty per cent.) If to the twenty-six cases one adds three cases of cysts of the mucous membrane of the sinus, one arrives at a total of twenty-nine cases in one hundred of lesions of the maxillary sinus, of these eleven being bilateral, nine on the right, and nine on the left.

The majority of writers agree with Zuckerkandl in distinguishing in the maxillary sinus, mucous collections, sero-mucous (mucocoele), and

¹ Contribution to the Anatomical Pathology of the Nasal Cavities. "Giornale della Reale Accademia di Medicina di Torino," Nos. 9 and 10, 1891. "Annales des Maladies de l'Oreille," 1891.

collections of pus (empyemata). Without wishing to deny that in certain cases the characters of the secretion are distinctly mucous or purulent, one ought to recognize that, as a rule, such a distinction cannot be definitely established. The anatomo-pathological picture most commonly found is practically as follows : The cavity of the sinus is occupied by a viscid mass, yellow-green in colour, ropy, often so dense and massed together as not to be broken up even by the violence of a strong jet of water : the microscope reveals a varying proportion of epithelial cells, mucous elements, globules of altered pus, and a great quantity and variety of micro-organisms, especially bacilli. The mucous membrane lining the cavity appears swollen, yellowish, and with its surface raised into black or dark red scars caused by a fine vascular injection, and often by more or less extensive ecchymosis. The swelling and coloration of the mucous membrane are produced by infiltration with a lemon-coloured liquid. The said infiltration is not uniformly distributed, but according to my researches is, as a rule, more noticeable on the anterior and inferior wall of the cavity, where the mucous membrane may reach the thickness of more than a centimètre, a condition which may give an appearance like true cysts, and small bladders full of liquid. An incision, however, reveals that the liquid is not collected in cystic cavities lined with epithelium, but, on the contrary, is situated within the network of a low connective tissue, and makes its exit slowly from the superficial portion of the incision, sometimes in such quantities as to fill in part of the maxillary cavity. As a rule, one does not meet with alterations in the nasal mucous membrane, nor pus, not even in correspondence with the hiatus : so too the osseous parts of the cavities and alveolar margin of the maxilla present no alterations. In no case did I note closure of the hiatus.

The characters above described are sufficient to distinguish the collections of muco-pus which, as has been shown, are so frequently met with in the cadaver, from the true empyemata in which the secretion is distinctly purulent, liquid, and emptying itself into the corresponding nasal cavity where it sets up secondary alterations of various character, and in which the morbid process is often associated with alveolar lesions and with specific or tubercular alterations of the nasal frame-work. All tends to show that the form I have met with anatomically does not give rise during life to any symptoms, functional or objective, in the nose, and hence we ought to form a separate category which might be designated as mucocoele, since the mucous element is the predominating one. With regard to the secretion, in which one may discover the presence both of pus and micro-organism, it is worthy of note that clinically this form may escape diagnosis if one does not open the sinus freely ; even an exploratory washing out is not sufficient to break up the viscid mass of secretion. The absence of osseous lesions and the frequent bilateral occurrence of the affection renders it tolerably probable that these collections are brought about, according to the hypothesis of Zuckerkandl, by the diffusion to the lining of the sinus of an inflammatory process in the nasal mucous membrane ; the latter is cured, while the mucous membrane of the antrum remains chronically inflamed.

From the collections already described, one must distinguish true cysts in the mucous membrane, as found by me in three cases.

No. 18. Cesare Ghigo, aged forty-six. Nephritis; left maxillary sinus empty; on the wall nearest the orbit, cystic collection in the mucous membrane as large as a peach stone; on incision, flow of pus with small granules similar to those of actinomycosis, but which, on the contrary, are formed from detritus of fatty substances. Right maxillary sinus: Cystic collection analogous to the preceding, containing dense pus, yellowish-grey, without the granules noted on the right side; no lesions either of bones or nose.

Anna Taban, aged sixty. Intestinal occlusion. Negative examination of nose and ears: in the right maxillary sinus, on the inferior wall, the mucous membrane was raised like a large yellow bladder of the size of a hazel nut. On incision, the bladder collapsed and gave vent to a lemon-coloured serous liquid, not true pus.

On the basis of what has been demonstrated, we may formulate the following conclusions:—

1. Muco-purulent collections in the maxillary sinus are met with frequently; in a first series of researches I found them in seventeen per cent. of the cases: in a second series they reached twenty-six per cent.

2. The absence of lesion of the parts, and the frequent bilateral occurrence of the affection, authorize us to place these collections in a separate group from true empyemata.

3. In all probability these affections are not of dental, but of nasal origin.

4. Cysts in the mucous membrane of the maxillary sinus, containing either serum or pus, were found by me in two per cent. of the cases.

ELEVENTH INTERNATIONAL MEDICAL CONGRESS IN ROME.

SECTION OF OTOTOLOGY.

(Continued.)

THE INFLUENCE of CAUSTIC TREATMENT in relation to the REMOVAL OF CARIOUS OSSICLES.

By Prof. GHERADO FERRERI (Rome).

The remarkable success of intra-tympanic operative treatment in the cure of chronic purulent otitis media has partly eclipsed those methods which are based on the action of special remedies, in solution or in substance, formerly recommended as instrumental in curing suppuration in the tympanic cavity. The first in historical order to undertake operative treatment in otology was Lucae, of Berlin, who in 1872 introduced incision of the posterior fold of the membrane; Weber-Liel in 1872 performed tenotomy of the tensor tympani; Kessel, of Gratz, in 1871 performed

tenotomy of the stapedius, and later, in 1877, practised several other operations for the mobilization of the stapes, removing membrane, malleus and incus; De Rossi was the first to present to the Academy of Medicine in Rome a case of disarticulation of the long branch of the incus and the stapes, in order to overcome the relative immobility of this latter bone. This first period of otological operative treatment was developed with the purpose of correcting the results of chronic purulent otitis media. Sooner or later, however, a limit had to be reached in the use of the knife for promoting the cure of chronic purulent otitis media by removing the diseased parts of the tympanic cavity. The second period of intra-tympanic surgery is entirely taken up with freeing the tympanum of the carious ossicles. To Samuel Sexton must be given the priority of having in chronic purulent affections left the old and feeble system, which was limited almost entirely to the removal of polypi, and the introduction of caustic or astringent remedies, or antiseptic and drying ones. With Sexton there was inaugurated a febrile period of operative interference, and Schwartze, Ludewig, Kretschaman, Stacke, Burnett, Blake, all helped greatly to perfect intra-tympanic surgery. Now, however, the moment has come to weigh and measure from experience the indications for these operative methods in the cure of chronic purulent otitis media; that is, to see if they are always necessary, if in all cases they are sufficient to remove the morbid foci, if in certain cases they should be preceded by local treatment less severe, if one ought not to take account of the different ages of the patients—these considerations have formed for me a subject of study, as I have had a large field of practice provided by the clinic of Rome to judge of them, and the opportunity in a great number of cases of chronic purulent otitis media of comparing the value of ancient and modern methods of treatment. Indeed, I refrained from forming an opinion on the surgical treatment of suppuration in the tympanum until, during two years, I had carefully followed the cases operated on by excision of the chain of ossicles. Now, placing in comparison the patients subjected to caustic treatment with those operated on, I am convinced that many of the latter were only cured after being submitted to the method of Schwartze, with the modifications introduced by De Rossi in this clinic, in order that the liquid should run into the deepest parts of the middle ear.

I will take the liberty of advancing an opinion which perhaps will not be accepted completely by the more modern supporters of intra-tympanic surgery, who do not admit any other cure of chronic purulent otitis media except the extirpation of the membrane and the ossicles. It is true that in many cases of suppuration of the attic, the body of the malleus and the incus are subject to caries in proportion to the deficiency of drainage and the unfavourable position of this region—too deep to be well disinfected. It is also true that in many cases the excision of these ossicles checks the suppuration from the ear, but one cannot conceal from oneself the fact that in many cases in which this operation was performed, and which were submitted to microscopical examination, it was noted that the ossicles were absolutely healthy, and that the cavity of the attic continued to suppurate as before. In these circumstances, if

a caustic treatment had been undertaken first, very probably the otorrhœa would have been checked and the ossicles spared. In all chronic suppurations of the middle ear operative interference ought always to be preceded by a caustic cure; and when this does not succeed, but only then, should we think that the cause of the chronicity depends on caries of the bones, and then we should proceed to their removal. Is it possible to admit that the removal of the malleus and of the incus can have so much efficacy in tubercular lesions of the attic, of the mastoid antrum, and of cholesteatomatous collections in these cavities as to be sufficient of itself to check the suppuration? This operative interference will modify the drainage of the middle ear, but in order to arrive at its cure further treatment will be necessary, directed towards combating the morbid process located in the higher parts of the ear—that is to say, behind the *membrana flaccida* of Shrapnell. The anatomical structure of this region is such that numerous loculi of pus are formed in the folds of mucous membrane which retain inflammatory products, even when the malleus and incus have been entirely removed. Consequently there is probably no chronic suppuration of the mucous membrane lining the attic which has not a substratum of caries in the neighbouring osseous parts.

In these cases the excision of the ossicles, whether they are carious or not, will have no other value than that of rendering more accessible the region of the attic, and I believe that the definite cure will only be arrived at by caustic solutions which act directly upon the diseased portions of this cavity. I share the idea of Arbuthnot Lane that the ossicles of the middle ear have a very secondary importance in chronic suppuration of the ear, and that when the caustic treatment is not efficacious the operation of antrectomy gives much better results than simple excision of the chain of bones. Felix Cohn believes that the chronic lesions of the tympanic cavity in which excision of the ossicles has produced permanent results are very few, so much so that he would limit the value of this operation simply to the purpose of preventing further progress of the disease; consequently he esteems the extra-auricular method of Stacke as much more logical, if not preferable to intra-auricular interference. Robert Barclay, noting the difficulties of operating in the deep parts of the middle ear, has tried to demonstrate that they in great part depend on the imperfection of the instruments in present use, and of want of skill in employing them. I think that if all the difficulties consisted in the operative *technique* being not yet perfected, we would by this time have overcome any difficulty. Since intra-tympanic operations have been so largely practised it is not the *technique* which, according to my opinion, has been shown to be deficient. Sexton, Burnett, Blake, Jack, Schmiegelow, Wolf, Küster, De Rossi, etc., have contributed to otological literature most brilliant operative methods. It is rather the otologists who have not yet precisely formulated the indications for this intra-tympanic procedure. Should the curative treatment of suppurative inflammations of the tympanic attic (*recessus epi-tympanicus*) be similar to that of suppuration limited to the tympanum proper? Can one perform removal of the ossicles

through the auditory meatus at all ages? In chronic suppurations of very old date in which the lumen of the meatus in its deeper osseous portion has been considerably narrowed, will it be possible to perform excision of the membrane and the removal of the hammer and incus? Is it not a mistake in tactics to limit oneself to excision of the membrane and the ossicles when we have suspicion of caries of the walls of the attic and of cholesteatomata in the antrum, and when there is the probability of being compelled to interfere later on with antrectomy? As a rule, patients bear badly repeated and useless surgical interference, and in the present case the method of Stacke gives more satisfaction to the just requirements of the patient and the good name of the operator.

We quite agree with the opinion of Felix Cohn, who believes that the cases of chronic suppurative alterations of the middle ear are very few in which the excision of the ossicles has produced a permanent good result; I believe that intra-auricular operations are more adapted to the treatment of the results of purulent otitis media, and that the extra-auricular method of Stacke and Küster is the one most indicated in suppuration of the middle ear, especially when, in addition to the articulations of the ossicles, the walls of the tympanic attic and of the mastoid antrum are carious. In addition to the removal of the carious ossicles by the natural route, *i.e.*, through the auricular meatus, one often meets with difficulties which render the operation incomplete. On some occasions we are apt to find an obstacle at our first attempts at dissecting the handle of the malleus by disturbing granulations from which blood flows in sufficient quantity to render invisible the field of operation; at other times when the articulation between the incus and hammer is carious, in making traction on the latter bone, we are apt to carry away the handle which is healthy, and leave the head adhering to the incus, the removal of which, through the meatus, is not, according to Stacke, entirely free from danger. Whenever during the first period of the operation one does not succeed in carrying away, easily and intact, the malleus, the disarticulation of the long branch of the incus from the stapes is a more arduous task; and in the repeated attempts to extract this second bone from the chain one risks burying it in the appendix of the tympanic cavity existing above the superior wall of the auditory meatus. In fact, when we have established the diagnosis of chronic purulent otitis media from caries of the tympanic attic, and we think of trying removal of the ossicles by the intra-tympanic route, with a dubious result, we shall more certainly secure success by arriving at the accessory cavities of the tympanum through the extra-auricular method of Stacke, being able at the same time to explore the tympanum, the epi-tympanum, and the mastoid antrum, which are so often simultaneously diseased, notwithstanding the absence of local and general symptoms. But here, I would repeat, that whichever method is adopted—intra- or extra-tympanic—the surgeon would be too precipitate who decided upon it without having first tried a caustic treatment. In addition to the propriety in many cases of avoiding any operative treatment, one may expect the spontaneous elimination of the carious ossicles, a fact which I have not seen recorded by other writers, and of which I

have had the pleasure of recording the history and of making histological preparations. Only in the annual meeting of the Belgian Society of Laryngology and Otology, held at Liège in 1892, Rutten showed the handle of a malleus expelled from the ear in a clot of blood. I will repeat in a few words the clinical history of the two cases in which caustic treatment favoured the elimination of the carious ossicles, and effected the cure of the patients :—

First case: Alfredo D., aged five, apparently robust, was affected from infancy with chronic purulent otitis media on the left side. He received no attention from his parents because he complained of no special suffering. His mother brought him to us on the 2nd of January in this year, because after influenza the ear commenced to bleed continuously, and the mastoid region was slightly swollen. The small patient complained of pains in the ear, and had slight evening rise of temperature. Examination showed the meatus full of a fungating vegetation, bleeding easily, and nearly reaching the external meatus. Secretion was most foetid, greenish yellow, mixed with blood, and increasing on pressing lightly behind the root of the external ear. On the 10th of January, having chloroformed the patient, and performed the incision of Wilde, I penetrated with a small spoon, and without difficulty, into the mastoid antrum, emptying it of a considerable quantity of fungating granulations. With the same spoon from the auditory meatus I removed all the granulations occupying the tympanic cavity; an irrigation of boracic acid passed easily from the auditory meatus out through the wound, and *vice versa*. After fifteen days, noticing that the supuration continued to be abundant and offensive, I proceeded to the caustic treatment of the middle ear by the ordinary method. During twenty-four hours the child complained of violent pain in the ear, and had some febrile reaction. At the first dressing, *i.e.*, forty-eight hours after one had introduced the solution of nitrate of silver (three per cent.) into the ear, on performing irrigation with boracic acid I noticed the malleus in a small mass of thickened pus. From that moment the child rapidly improved, the mastoid wound closed in three weeks, and the purulent flow from the ear ceased completely.

Histological examination of the expelled ossicle—decalcification, staining with carmine. The sections were faintly and uniformly coloured. One recognized with difficulty the structure of osseous tissue; the bone cells were not visible. In the vessels and in the connective tissue nuclear figures were not recognized. Diagnosis—fragment of necrosed bone.

Second case: Angela F., aged ten, slight constitution, underwent in March, 1893, in this clinic, the operation of antrectomy, the wound closing after two months' treatment, but suppuration continuing from the right middle ear. In August she was taken down for some sea bathing, and after two days of very high fever and acute pain in this ear with tumefaction of the mastoid region, opening of the antrum was once more performed; a large polypus was removed, which had appeared through the speculum to be attached over the attic. Irrigations of the middle ear were never found to come out through the wound or *vice*

versa. After a month's treatment, seeing that the local condition of the middle ear showed no sign of improving and that the suppuration continued to be foetid (notwithstanding the destruction of the membrane to such an extent that it could not retain pus), and especially as there commenced to reform fungating vegetations in the higher part of the tympanum, I wished to try the caustic treatment, in the classical method already described by me, in order to make the medicament reach the epi-tympanum. The child bore the caustic treatment without great suffering, and, after three days, in the liquid used for irrigation there was found the malleus. From that time the patient commenced to improve rapidly, the otorrhœa ceased, and the mastoid wound healed up. Histological examination of the expelled ossicle—decalcification, coloration with carmine. The sections were found to be formed of a part in which one could recognize osseous tissue, and of a larger part consisting of cartilaginous tissue. The sections showed numerous vessels surrounded by connective tissue infiltrated in certain points. The nuclei of the connective tissue and of the walls of the vessels were well coloured with carmine. The nuclei of the bone and cartilage cells had, on the contrary, almost completely disappeared. At the edge of the preparation one recognized in certain points a granular tissue, in others a residuum of epithelial covering, in others amorphous detritus. Diagnosis—necrotic caries.

Summing up my personal opinion on the value of recent progress in operative otology, I trust that I shall be found in accord with the majority of those colleagues who have given proof of their patience, and tried the less supported methods of treatment in order to effect a cure of chronic suppurative lesions of the middle ear. As a general rule, I may formulate the following conclusions:—

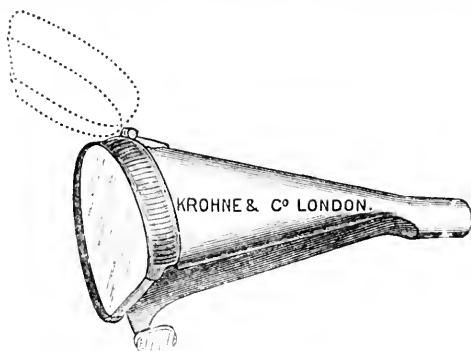
1. That intra-tympanic surgery is chiefly indicated in the treatment of the results of chronic purulent otitis media.
2. That extra-tympanic operative treatment secures more surely the cure of chronic suppuration of the middle ear, of the epi-tympanum, and of the antrum.
3. That the excision of the carious ossicles is not always a radical cure of suppurations in the tympanic cavity when the walls of the attic and of the antrum are also carious, and when these cavities contain cholesteatomata.
4. That caustic treatment should always be carried out before proceeding to any operative treatment, either extra- or intra-tympanic, in chronic suppurations of the cavity; and that this treatment may be sufficient to eliminate carious ossicles and so spare an operation.

A MAGNIFYING AURAL SPECULUM, suitable for Operating.

By Dr. DUNDAS GRANT.

This instrument is in the form of an ordinary ear speculum, over the external orifice of which is a magnifying lens, attached by means of a

hinge, so that it can be raised out of the way, if necessary, for the introduction of instruments, or for other purposes (*vide figure*).



As much as possible of the under portion of the speculum and of the lens is cut away, so as to admit of the manipulation of suitably curved probes, syringes, knives, etc., without interfering with the efficacy of the speculum as such.

The advantage of such a magnifying instrument is well known to all who have made use of Siegel's speculum, especially to those who are at all presbyopic.

A NEW AURAL FURUNCLE KNIFE.

By Dr. DUNDAS GRANT.

This consists of a short, recurved, double-edged bistoury, about a quarter of an inch in length, at the extremity of a steel stem, which can be fixed into any of the handles usually employed for aural instruments.



The advantage of the instrument is that the incision can be made with great rapidity from within outwards, without risk of failure from the patient drawing away the head, and without risk of injury to the tympanum from any unlucky slip.

A NEW CONTRIBUTION TO THE PHYSIOLOGY OF THE MIDDLE EAR.

By Dr. CARLO SECCHI.

Very few amongst you will remember a short preliminary communication which I made at the Congress of Berlin, and which aroused incredulity in many, while in others, however, it awakened such interest that it was fully published in almost all the journals of otology. I have not yet published the whole work, because the clinical researches by which I want to confirm it can only be slowly achieved, and I am com-

pelled to retard the settling of the question from this point of view. But in order that you may not suppose that I have been misled, I have had the idea to-day of confirming my previous paper, of which I will now give a *résumé* for those who were not then present, and I will add a few new interesting facts. I said then, that on the basis of experiments made on dogs and cats in the physiological laboratory of my illustrious teacher, Prof. Albertani—experiments made with every care, and under the most intelligent control—I was led to conclude that in the tympanic cavity there is ordinarily an amount of positive pressure about four millimètres greater than the external pressure; that this increased pressure must be produced by the Eustachian tube, but it can arise also by the action of the muscles of the drum; that this pressure increases more or less when any sound attracts the attention of the animal under experiment, and the more so the higher the pitch and the greater the intensity of the sound, and it lasts as long as the sound itself.

To-day I have to confirm all that I said four years ago, and to add that this increased intra-tympanic pressure exists also in man, although I have not been able to measure it; but it is most evident from this fact that the membrana tympani, considered in the direction of its radii, is curved outwards, and more in those parts where the circular fibres are few or absent—namely, in the neighbourhood of the extremity of the handle of the malleus, and in cicatrices; and hence it results that if one punctures the membrane with a tubular needle, so that the equilibrium of pressure is restored between the drum and the meatus externus, the curve of the membrane, and still more that of its cicatrices, is flattened out in the most evident manner. It is also clear that the diminution of pressure in the meatus, which Politzer was the first to note in deglutition, is not due to contraction of the tensor, but to the fact that in deglutition the canal of the Eustachian tube is opened sooner than its pharyngeal mouth. Finally, I would say that it has been reserved for me to give the physiological proof that the stapedius is antagonistic to the tensor, as had already been suspected, because when the tendon was cut so that the belly of the tensor could not contract—since I had cauterized it with a galvanic point—the pressure within the tympanum under the action of sounds diminished instead of augmenting. At the present moment, more than ever I am convinced that the chain of ossicles, and the muscles which move it, do not represent a route of transmission for sounds, but simply an apparatus for accommodating the ear to sounds. The middle ear, according to my belief, functions like a tambour of Marey. According to the principle which in physics goes under the name of the principle of Pascal, with a mechanism more compressible and exquisitely sensitive, it transmits the sonorous waves from the tympanic membrane to the membrane of the fenestra rotunda. The latter would thus turn out to be the true *porta auditus*. Now, since I have presented to you some physiological facts—i.e., experiments on living animals, and the older physiology of the ear was entirely based upon experiments made upon the cadaver—I hope that all of you will unite with me in expressing the hope that in the next International Congress of Otologists—for example, in Florence next year—this point should be made the subject of a special

discussion, which, if made at present, might be sterile, while if deferred for more than a year, we might make preparation for throwing a clearer light on a subject which up to the present has been obscure ; and, if I mistake not, might also indicate new and unexplored ways for satisfactory treatment, which up to the present has been very deficient, because based on mistaken theoretical opinions.

Dr. GRADENIGO (Turin) observed that a discussion on the results of the numerous physiological experiments, performed with great perseverance by his colleague, Secchi, might at the present moment be premature and only prove fruitless. He would not, therefore, enter into a discussion on the interpretation which Secchi gave of his results, but would limit himself to expressing a few objections which occurred to him at the moment. The chief one was that it might be admitted that the giving way towards the meatus externus of the cicatrices, or of the postero-inferior segment of the membrana tympani may depend, not upon increase of intra-tympanic pressure, but upon shocks on the internal surface of the membrane from frequent nose-blowing. These patients, as a rule, suffer from chronic catarrh of the upper air passages. A clinical fact, which tends to weaken Secchi's theory, is that, when calcareous *plaques* have transformed the membrane into a solid plate, vibrating with difficulty and irregularity, the hearing may remain almost normal, whereas, when there is ankylosis of the ossicles and the membrane preserves a normal appearance, one finds a noteworthy diminution of hearing power.

Dr. COZZOLINO (Naples) held that the chain of ossicles is a means—not an indispensable one—serving to improve and modify the transmission of sonorous waves, and that this view is in accordance with the simple law formulated by Müller on the transmission of sound waves between two membranes united by a solid body, and that we are continually being taught this by all clinical facts. We see it in the adhesive results of inflammation which immobilize the apparatus either completely or in part, and also in the solutions of continuity brought about by suppurative processes (chiefly from infection, scarlatina, etc.). Their late colleague, Sapolini, held that the fenestra rotunda was the chief route of transmission ; in doing so, he was but repeating what had already been said by Scarpa, who called it the “secondary tympanum”—exactly as is now surmised by Secchi.

Dr. MASINI (Genoa) believed, with Secchi, that a full discussion cannot take place at present. Nevertheless, in consequence of his colleague's experiments, he believed that we cannot separate the function of one part from the other of the tympanic cavity. The air as well as the chain of ossicles must take its share in the auditory function of transmission. In any case, conclusions on this subject would be premature, especially when we are not yet well acquainted with the physiology of the internal ear. The very theory of Helmholtz—although a pleasing one—no longer answers to the present exigencies of science. It is therefore necessary to wait and unite the researches in the internal and middle ear, if we wish to arrive at a knowledge of the function of the several parts which compose the auditory apparatus.

Dr. CORRADO CORRADI (Verona) observed that, although they

conceded importance for hearing to the chain of ossicles, that did not entail denying that it was contained in the tympanum. However, it is difficult for the present to maintain that the first serves less than the second, or does not serve at all. On the other hand, they should not lose sight of another route for the transmission of sound to the nerve terminals, viz., that from the outside air to the bones of the cranium, a direction whose importance had been chiefly advanced by Politzer. Now Politzer attributes great importance to the chain of ossicles chiefly in the transmission of high tones, and the speaker observed that he also in his experiments had found that, in the transmission by the bones of the head, the high tones are distinguished—*i.e.*, from the air to the bones of the cranium, it is chiefly the high notes that are transmitted, and this coincides with the idea now held by Politzer.

Dr. GELLÉ regards the chief *rôle* of the chain of ossicles as an organ for the transmission of sounds to be indisputable. Solids, as is well known, transmit sound more quickly, but they have here a special *rôle*, the membranous vibrations become solid—that is to say, there is no change in the form of the parts, which is a protection to the labyrinth. But he does not deny that sounds penetrate also through the fenestra rotunda. By means of centripetal pressure the action, so clear, of immobilization of the chain and of the stapes upon the passage of sound waves is seen; these attenuate upon each pressure, and I see no better demonstration of the principal transmission by way of the auditory ossicles.

Dr. GRADENIGO observed that any clinical observations which might be adduced in opposition to the theory of Secchi can have no great value, because we are in the habit of interpreting clinical facts in relation to the theories that are most accepted. In each individual case we must examine to see if there is no room for another interpretation on the basis of the new theory. Of clinical objections, that which seems to him the most serious is that which he recalled of the calcareous scars of the membrana tympani.

Prof. POLITZER was of opinion that the experiments of Dr. Secchi were without doubt exact, but were in opposition to clinical observations. With regard to the case cited by Dr. Secchi, Prof. Politzer believed that in the cases in which the handle of the malleus is attached to the internal wall of the tympanum the transmission of sounds is produced by the contact of the superior and posterior portion of the membrane with the stapes. He thought that for the perception of low and middle sounds the chain of bones was indispensable, but not necessary for high notes since the latter also pass through the bones of the cranium.

Dr. SECCHI: It was already known that hearing takes place without the ossicles—indeed it was because of this that the other theories have appeared to try and explain this fact. Anchylosis of the ossicles, it is true, produces a remarkable diminution in the function, but nearly everybody looks for alterations in the chain of bones, and forgets the alterations in the fenestra rotunda and in the labyrinth, where they are more difficult to find. My theory is not that of Sapolini, which had been maintained from the times of Morgagni and Scarpa, but is a

completely new one. Transmission through the ossicles has not been excluded and not denied. The theory supported by Gellé appears to me to be in no wise different from that of Müller, and the action of centripetal pressure, and I might also add that of centrifugal, had already been studied by Helmholtz himself, and both produce diminution in function. The explanation given by Politzer in cases of adhesion of the handle of the malleus is so far from the truth that the auditory function actually improves when, by blowing air into the tympanum, the posterior superior portion of the tympanic membrane is removed from the stapes. For the rest I feel grateful that my communication has not passed unobserved, and I trust that fuller discussion may take place when more clinical and experimental facts, both *pro* and *contra*, have been gathered together; and if we should succeed in demonstrating the contrary of what I have brought forward, equally with all of you, I shall be pleased at an important addition to science.

ON AUSCULTATION OF NOISES IN THE EAR.

By Dr. MADEUF.

The author cites the observation of a patient who was able to hear, when she was in a recumbent position, or even when her head was bent over a table, a very intense noise, corresponding to the cardiac sounds, without the latter organ presenting any abnormality. This noise was diminished by compression on the carotid, and increased by elevation of the arm. The patient had no lesion of the ear. Treatment was without any effect. The writer is unable to explain this noise, and he says that direct auscultation of the ear ought to be made much more frequently, and that it should be carried out by observers who have good hearing.

Prof. GRADENIGO observed that, in all treatises on otology, the distinction is given between entotic noises in the ear (vascular, muscular, &c.) and subjective noises. The first can often be heard, even at a distance, by the observer. The second, whose pathogenesis ought to be sought for in an irritation of the apparatus for the perception of sounds, cannot be perceived objectively, just as the phosphenes produced by mechanical irritation of the retina are also not to be seen objectively.

Dr. SZENES: I think that one can only hear, in the proper sense, two kinds of noises—that is to say, either vascular or muscular noises. It is otherwise as regards localization, since one can often auscultate noises or hear them through the air at a certain distance which, in spite of this, arise outside the ear. In one case observed by me the cause of such audible noises was a blow on the ear, followed by sudden deafness, accompanied by a tapping noise in the ear. The hearing returned in a few weeks, but the noises lasted for a year. These were heard at a distance of fifteen centimètres. They did not even stop during sleep, and were nothing else than a muscular noise caused by chronic contractions of the levator palati muscle. It was completely removed after sixteen days' treatment, which consisted in pressing down the root of the tongue with the middle

finger every day, and in pressing and massaging the pharyngeal opening of the Eustachian tube with the index finger.

Prof. COZZOLINO referred to a case of objective noises in the right ear due to a chorea of the soft palate, limited to its right half. The partial contraction of the velum was visible. Prof. Cozzolino saw this case in 1882, when he followed the clinical courses in Vienna. It was in the clinic for children's diseases under Prof. Widerhofer, who studied this striking case of objective noises in a little girl eight years of age. The noise was heard at a distance of several centimètres from the ear.

THE TREATMENT OF PURULENT OTITIS MEDIA IN SCROFULOUS SUBJECTS.

By Dr. ISAIA (Naples).

It is my wish to record the results I have attained with the balsams of Peru and Tolu in chronic purulent otitis media in scrofulous subjects, with the hope of formulating some therapeutic and prophylactic conclusions. We are to-day in a position which enables us to conclude that chronic purulent otitis media is of an infective nature, in that it is etiologically due to the intervention of pathogenic micro-organisms, the streptococcus of Ronsenbeky, the diplococcus of Fraenkel, and other varieties of pyogenic cocci, as has been demonstrated by the bacteriological investigations carried out on the secretion of the tympanic cavities, the nasal cavities, naso-pharynx, etc. In these exudations the bacillus of Koch has also been traced, and Tröltsch, confirming its existence, declared that not only did it play an important part in the development in the course of chronic suppurations of the middle ear, but that it even represents a starting-point of general and pulmonary tuberculosis. It is from this terrible consequence of otorrhœa that I ask your attention to demonstrate the importance of the balsams in these cases of chronic purulent otitis media occurring in scrofulous subjects.

It is undoubted that the greater contingent of the cases of otorrhœa is met with in scrofulous subjects, and especially in children who are lymphatic, rachitic, etc., as is affirmed by the well-known Florentine otologist, Prof. Grazzi, in his monograph entitled "*Otorrea: Cause, Effetti e Terapia.*"

It is equally certain that children, in consequence of the acute exanthemata—measles, scarlet fever, etc.—are more subject to purulent processes in the middle ear. I believe that the chronic purulent otitides mediæ, in accordance with the opinions of Tröltsch, and in virtue of the special soil where they develop, ought to be considered as a most dangerous tubercular primary focus, localized in the tympanic cavity; also, that they may be followed by tuberculosis of a distant organ (meninges, larynx, etc.), or a general tubercular infection.

To combat these lesions the balsams are important remedies. I do not present them as specifics for this disease, because one could have the same result from many other curative methods which give us at times

more or less satisfactory cures. But as anti-scrofulous and anti-tubercular remedies they act in such a way that, when one cannot arrive at a radical cure, their efficacy in comparison with other therapeutic means would be always undoubted. Because, by modifying the suppurating surface and rendering it less adapted to the cultivation of bacilli in general, and of those of Koch in particular, we can explain the prophylactic effect against tuberculosis, both general and pulmonary. That the balsams have an action antiseptic, anti-putrid, and anti-bacillic, there is no doubt whatever. This has been attested by clinicians and therapeutists; amongst others, Cantani, Semmola, Du Jardin-Beaumetz, etc. Landerer, of Berlin, has tested their efficacy in pulmonary tuberculosis, especially in the early stages. The well-known Neapolitan syphilographer, Prof. De Amicis, is employing them in torpid venereal lesions, and especially in lupus. Dr. De Giacomo, a distinguished surgeon of Naples, uses them in all glandular lesions of bones and joints of a scrofulous or tubercular nature.

Directions in the use of the balsams.—First of all, it is necessary to eliminate the pathological products in the secretion with antiseptic irrigations of boric acid, resorcin, chloride of sodium, etc. (one or two per cent.), in order to render visible the external meatus and tympanic cavity. One proceeds then with the otoscopic examination, to see if either dermatitis or furunculosis exist in the meatus auditorius, in which case the balsams, on account of their irritation, would be contra-indicated. At the same time a minute examination of the tympanic cavity should be made, to remove osseous sequestra when they exist. These first steps having been carried out, the meatus and tympanum are well cocaineized in order to spare the patient the slight discomfort incident to the application of the balsams. When five or ten minutes have passed—to allow of the complete anæsthetic action of the cocaine—through the auricular speculum one passes a pipette into the tympanic cavity, and bending the head of the patient to the opposite side, five to ten drops of the balsamic solution are instilled, and left *in situ* if well borne by the patient. If not tolerated, a suitable tepid antiseptic irrigation is at once used. Instead of a pipette, one can employ any cotton-wool applicator, with which the balsamic solution can be carried through the speculum, directly on the lesion.

Some of the formulæ principally employed:—

(I) Balsam of Peru	5'00
Rectified alcohol	5'00
Hydrochlorate of cocaine	'50
(II) Balsam of Peru	5'00
Glycerine	10'00
Hydrochlorate of cocaine	'50
(III) Balsam of Tolu	1'00
Balsam of Peru.....	1'00
Rectified alcohol	5—10'00
Hydrochlorate of cocaine	'50

Prof. COZZOLINO said he saw no reason to discuss the therapeutics, because it seemed superfluous to modify the sovereign indications for

antisepsis. He would like now to ask Dr. Isaia if he thought it was legitimate to-day—that is to say, if it was a scientific use of language—to employ the word “otorrhœa” after the great progress that had been made in pathological anatomy; what he considered the cause of the chronicity of auricular suppuration, and what he meant by the adjective “scrofulous” in the year 1894.

Prof. GRADENIGO remarked that the simple word “otorrhœa” ought now to be abandoned, and it was necessary to differentiate one case from another according to the kind of micro-organism which was producing infection, and according to the presence or absence of demonstrable changes in the bone which rendered surgical intervention indispensable. The indication of the effect of a local remedy is incomplete when it is not accompanied with particulars of the case.

Dr. SZENES: In reference to the remarks of Prof. Gradenigo, I should like to state my opinion, which, by the by, I published in 1889 in a paper, “Zur pathologie und therapie der acutem Otitis media” (“Allgem. Wiener Med. Zeit.”). I believe that in by far the larger number of cases there is a mixed infection, and that we can seldom find pure staphylococcus and streptococcus, and so forth. In general, otorrhœa is only a symptomatic diagnosis, which scientifically ought not to be used, and especially when, instead of it, we have a nomenclature which presents a diagnosis based upon pathological, anatomical or patho-histological changes. As regards the therapeutics of what Dr. Isaia has named the otorrhœa of scrofulous individuals, I should insist that in the first instance the most vigorous local treatment should be carried out; and because we know by experience how slow these cases are, and how much they try our patience and that of the patient, it is indicated at the same time with the local to carry out a general treatment. Internally iodine and iron should be given, and the patient may take iodine and iron baths, but at the same time the ear must be treated vigorously *secundum artem*.

ON DEAF MUTISM UP TO THE PERIOD OF RECEPTION INTO INSTITUTIONS.

By Dr. FLATAU.

In order to fill up a blank in the history of the treatment of deaf mutism this paper is written for the extension of the institutes called into existence by Flatau. As a rule the age at which patients are taken into these institutions is from the seventh to the eighth year. For the intelligent children there are plenty of kindergarten play and occupation schools for the age preceding ordinary school teaching, and these add to the advantages of home instruction, even where they do not take the place of it. For the deaf child, even with the best of wills, this domestic training is lost, except in rich families, where they are able to engage a special teacher of the deaf mute. Hence in the case of congenital or early acquired deaf mutism it is necessary to have a special arrangement. The deaf child is almost entirely deprived of intercourse with companions in play of its own age, and is almost entirely thrown back upon itself.

Often the unhappy child's condition is kept a family secret, and it is only when it is taken to school that it is discovered that the child has also never heard. It is an opportunity for having the defect remedied by early investigation of the child, and children who are sent to the kindergarten. The object of the art of teaching the deaf is to teach them to do things that it does not interfere with, but rather supports it. It is devoted to the exercise and practice in observations and occupations, so that an opportunity is afforded, while attempts at vocalization are made, the meantime special attention is given to the development of whatever little knowledge the child has. The conduct of these institutions, whether in free places, female teachers, or under the supervision of the State, must be left to the discretion of the State.

and the remarks by which it is made that it is all engaged in the early mental kindergarten for deaf children. Dr. Ford, near Boston, suggests the positions of the writer. The children, and are transferred to the institution or to some similar institution.

abolition of the initiative taken in such institutions would be not right to commence at a late age—instruction in speech and had remained deaf in cerebro-spinal meningitis.

Prot. SZENES: In my opinion deaf mute children, before they are placed in the regular institutions, should a few years earlier go into the kindergarten, and I think the first thing that should be attended to is that there should be a sufficient number of deaf mute institutions. In Hungary, for instance, the number of institutions is too small in proportion to the number of deaf mutes requiring them, so that in Budapest a benevolent society has been founded in order to provide private teaching for a larger number of deaf mutes who are fit for education. As regards the training necessary for these institutions, I might mention that in Hungary teachers who have passed the normal schools can receive in the public State institution for deaf mutes in the neighbourhood of Budapest a training, and can also go through their examinations so as to obtain a diploma of teachers of deaf mutes. Similar courses of training would be desirable for teachers of kindergartens. Concerning the development of whatever remains of former hearing power, I may further state that I examined a number (over 100) of pupils in the above-mentioned institution with regard to this. I found that there was hearing

for the loud voice for syllables, and even for words consisting of more than one syllable, but I have never been able by means of the ordinary instruments for deaf people to improve the hearing power to any extent.

Dr. FLATAU replied to Prof. Gradenigo that in these new institutions there was very good opportunity for comparing the factors in disturbance of speech and hearing. He expressed his thanks for the interest that had been taken in his paper. In contradistinction to Dr. Szenes he thought that the methods necessary for the older children should be carried out at the same time with regard to the younger ones. The cases in which the remains of former hearing is to be cultivated must depend upon the degree of the hearing remaining, and this training must not be carried to excess.

ON THE TREATMENT of DEAFNESS due to SCLEROSIS by means of large openings in the Tympanum.

By Dr. BARTHOLOMEO BOSIO (Bordino Nuovo, near Genoa).

The number of endo-tympanic operations devised for the treatment of chronic diseases of the tympanum, and many of them very ingenious, have not yet arrived at attaining a cure of these diseases for two principal reasons. First, the great difficulty in diagnosing all the various lesions which go under the name of sclerosis; secondly, the difficulty, supposing the diagnosis made, of carrying out the operative interference to the required degree. Several times, having found the necessary indications for having recourse to one of the operations in cases of ankylosis of the chain of bones under the nature of sclerosis, I had the opportunity of observing how the preliminary opening of a large aperture in the membrana tympani, which was to serve me for the purpose of laying bare the field of operation, was of itself sufficient to improve the condition of hearing, and more than all to modify very notably the intra-auricular noises. These operations have led me to confine myself in these cases to myringotomy alone. I know well that it is not a new operation, that it has been tried many times, and that it commended itself so little that it was given up; but it is the fact that in my seven cases, and in two cases of Miot—to whom I communicated my ideas—there were relatively good results, whereas there had been negative results under other methods of treatment. These patients of mine were affected for about ten years. They had no longer any aerial perception for the watch or for the spoken voice. Equally the cranial perception remained, and was relatively good. Now the question arises, what was the reason of this improvement? Why in other cases of sclerosis not only was myringotomy but also removal of the whole chain of bones insufficient? Are we to-day in a position to be able to diagnose exactly with our means of investigation all the various lesions of the tympanum which come under the name of sclerosis? Do we know all the relations of cause and effect? Certainly not. It would be unjustifiable not to take account of these improvements achieved by me by means of a treatment which, in certain cases not otherwise likely to get better, made a way for a series of operations.

Another consideration is this, which can be drawn from my patients, and is relative to the lesion itself, and to the mode in which the operative interference has benefited it. Dr. Miot, who had two such favourable results, thought that he ought to attribute them to a deficient tension of the membrana tympani, due to disease of the tensor, from which arose incapacity on the part of the membrane itself to allow the passage of sonorous waves. Another explanation might be found in the loss of play of the stapedius and tensor muscles due to cicatricial bonds, or to excessive hyperplasia of the mucous membrane. Whatever may be the explanation, it is certain it is right to undertake the operation I have described before any other, to make a large opening in the membrane by which we may have another datum in the direction of the diagnosis of the still obscure lesion.

Prof. SZENES: From the experiments of Sexton and Kessel I do not think it necessary to bring forward any particular arguments, in order to support my statement how difficult it is to keep open apertures made artificially in the membrane. On this account I will bring forward a case more as a curiosity than anything else, in which, in the case of a woman with sclerosis of the middle ear, I made an opening at one and the same spot six times. A year afterwards I saw the patient again, and there was not to be seen the slightest trace of the opening which had been six times made. With reference to the method brought forward at the Berlin Congress by Skronoski for the maintenance of artificial perforation, openings by means of cauterizing the edges of the perforation with chromic acid, I have no personal experience, but I should like to ask whether Dr. Bosio has made use of this method in his cases.

Dr. BOSIO showed an instrument for performing tenotomy of the tensor on either side.

Dr. BOSIO showed a bilateral tenotome for the region of the tensor tympani.

A NEW AUDITORY INTERMITTENT PARACUSIS.

By Dr. COZZOLINO (Naples).

In February last, in order to improve the hearing, I operated with excellent result on Signora D. L. by removing a cicatricial zone of the tympanic membrane in its antero-inferior segment. It dated from three or four years, and was due to a pyogenic otitis contracted in infancy.

Everything went quite antiseptically. It would be superfluous to say that with marked improvement in hearing—unexpected on the part of the patient—she obtained a great psychical *bien-être*. I remark on this because we cannot interpret as a pure psychical and anomalous fact the observation, which was new to me, which I am about to submit to your discussion, and which I think should be classified amongst the paracusis.

On the day following the partial myringectomy, while the patient was testing the hearing of the operated side by applying her watch to the ear, she noticed that every two or three seconds there was an intermission

in the perception of the tick-tack. This fact I repeatedly observed with great interest. I tested it with other watches, and when there was a louder beat there was no intermission, but only an interval in which the same sound was more faintly perceived.

I begged the patient's mother to let me know if the phenomenon—a new one for me—continued, and yesterday she wrote to me as follows :—

“My daughter is always conscious of the phenomenon you are acquainted with—*i.e.*, the intermittence in hearing of the tick-tack of the watch at the operated ear, which has so much improved in hearing.”

I now ask what can be the most likely interpretation of this paracusis of intermittence, developed after the myringectomy of an atrophic and cicatricial zone of the tympanic membrane?

In my opinion it could be interpreted as a symptom of altered tension, and rather of diminished hypo-tonos than of augmented hyper-tonos.

Dr. GIUSEPPE FICANO (Palermo) begged to ask Dr. Cozzolino the conditions in which he had made the observations—*i.e.*, if the patient was blindfold, and if the watch was held in contact or at a distance, in order to see if the possibility of suggestion was excluded.

Dr. CORRADI (Verona) took note of the declaration that the phenomenon was not present before the operation. That being so it did not appear to him that they could give a new name to an already known phenomenon; at the most they would have to do with a new cause for a fact already known. Besides, if ever the watch was in contact, this would not tally with the observations of Urbantschitsch. Yet the fact was not very different from that observed by the speaker in returning sensations, although, in truth, the tuning-fork, in these observations of his, was moved away and replaced. In any case, one single fact of this kind was too slight a thing to be brought to observation.

Dr. GRADENIGO (Turin) asked if in this case the limit of hearing of the watch was concerned. The intermittence of the perception of the watch at the minimum limit had been studied and noted by Urbantschitsch, and interpreted as a phenomenon of exhaustion.

Dr. COZZOLINO said (1) that the watch was applied to the ear, and was not at its maximum limit of audition—hence his observation was not to be confused with the studies of Urbantschitsch; (2) the patient was blindfold when he made the experiment with the watches; (3) it was noteworthy that the interval between every auditory interruption was always the same (two or three seconds), as he had carefully and repeatedly observed; (4) he could not agree with the observation made to him that the phenomenon was a known one, since no one up to the present had published it, and that this view was shared by Prof. Politzer, who was the first to note that the paracusis of Cozzolino is not to be confused with the physiological observations made by Urbantschitsch on individuals with healthy ears.

AMERICAN LARYNGOLOGICAL ASSOCIATION.

*Sixteenth Annual Congress, held at Washington, D.C., May 30th and 31st,
and June 1st, 1894.*

President—Dr. D. BRYSON DELAVAN, New York.

Secretary—Dr. CHARLES H. KNIGHT, New York.

*(Scientific Proceedings specially reported for the JOURNAL OF LARYNGOLOGY by
Dr. JAMES E. NEWCOMB, New York, Fellow of the Association.)*

First Day—Wednesday, May 30th.

PRESIDENTIAL ADDRESS.

The President heartily welcomed the members of the Association to its sixteenth anniversary, and proceeded to give a brief account of its history. This was, in fact, almost a history of laryngology, since Manuel Garcia was still living, and an honorary fellow of the society, while the list of its corresponding fellows had contained the names of the most distinguished specialists of the time. It would always be regretted that Horace Green, the pioneer specialist in diseases of the throat, should have died before the society was founded, since his works now prove that in this department he led the world.

The laryngoscope was introduced into the United States in 1860. By 1878 its use was being taught in twenty-five different institutions, and the specialty had gained a position of acknowledged respectability.

A complete history of laryngology in America up to the above date had been given by Elsberg ("Trans. American Lar. Assoc.," Vol. I., 1879). The American Laryngological Association was founded in 1878, with Louis Elsberg as its first president.

The motives which actuated the founders of the society were eminently philanthropic and ambitious. The organization of the society was a preconceived movement in the direction of a higher and broader education; an intelligent, vigorous effort to advance and disseminate the knowledge of laryngologic work. By means of its annual meetings, by the encouragement of the special literature of the department, by the bringing forward of youthful aspirants for laryngological fame, and, finally, by the study and practice of the best methods in the medical schools, it was hoped that the Association might fill a useful place.

The career of the society had been one of uninterrupted success. Its meetings had always been regularly held and well attended. Several hundred scientific papers had been contributed, many of which had been of great value. These facts were attested by the fifteen highly creditable volumes of transactions, for which the society stood sponsor, and the society, successful from the beginning, had steadily advanced, adding yearly to its usefulness, its influence, and its reputation. Within the past six years, national societies had been started abroad, and

now England, France, Belgium, Italy, and Holland were represented by them.

While discussing the subject of such organized work in laryngology, it was fair to mention the fact that many local societies and special sections of large medical bodies had been founded for the advancement of laryngology. Of these, the New York Laryngological Society, founded by Dr. Clinton Wagner in 1873, was the first association devoted exclusively to laryngology and rhinology established either in America or Europe. This organization was afterwards merged into the laryngological section of the New York Academy of Medicine, which now numbers sixty active members, holds monthly meetings, and is in an exceedingly flourishing condition.

Recently these local societies had greatly increased; existing ones had been more active, many new ones had been formed, and everywhere a spirit of progress had been apparent. The effect of the centralized effort and of the healthful competition made possible by these societies had been productive of great good, and it was gratifying that the United States had been the leaders in this movement. This very success imposed its own responsibilities, for future supremacy meant increased diligence in work and an ever-broadening receptivity to the ideas of others.

The Association had also held a high position in the department of journalism. Of the special journals now in circulation but two existed in 1878. Of these, "*Les Annales*," founded by Krishaber, Isambert and La Charrière in 1874, had maintained a highly creditable career. The "*Archives of Laryngology*," founded in 1878 by Drs. F. J. Knight, Cohen, Elsberg and Lefferts, had been a model magazine. In 1875 Dr. Lefferts had begun the publication of a complete bibliography, with critical abstracts, of laryngology. This was continued in the "*Archives*," and, later, taken up and carried on by other magazines, so that an unbroken chain of great value to the special student has been kept up.

Unquestionably the most important function of the society in the past and its greatest possibility of usefulness in the future lay in the department of teaching. If the Association is to attain and maintain the highest place it must become the exemplar and the guide. The question of education was the most important that could engage its attention, and in the origin of the Association had been its grand, primal idea, inculcated first and last by the wisest and ablest of its founders, and interwoven by them into its very being. Teaching had always been and always would be its most important office. As a teacher of teachers, it should not confine its work to laryngology alone, but should consider the science of pedagogy in so far as it related to this department. The fact that the Society contains the leading teachers of the United States imposes upon it the obligation to the profession which could not be set aside.

The first Presidents of the Association, Drs. Elsberg and F. J. Knight, had written fully upon the subject of undergraduate instruction, which had now reached a high degree of perfection. Indeed, in the department of laryngology, the plan of teaching, the equipment and the general discipline of at least one of our leading institutions, the College of Physicians and Surgeons of New York City, was of conceded superiority, and stood

unrivalled, whether at home or abroad, while other schools were doing excellent work. The question of the teaching of undergraduates in this country, therefore, might be said to have been fairly considered and successfully met.

With the progress of time new necessities have arisen, and lately a great advance in the study of medicine has been made through the establishment of schools for the special instruction of graduates in medicine. This movement, together with the vast increase in the literature of the department, has given to laryngology a great popularity, and the multiplication of those who assume to treat diseases of the throat has been enormous, calling loudly for increased and improved facilities for instruction. Beginning in New York, the value of this work had been quickly appreciated by the whole country, and not only were the original schools crowded with pupils, but in many other cities similar institutions had been established.

The problem of the instruction of graduates is a much more difficult one than that of the teaching of undergraduates, for while the latter shared relatively the same conditions of education, age and general advancement, the former present a vastly greater diversity of personal need and professional attainment. They are also likely to be hampered by preconceived ideas and imperfectly educated habits of thought and of practice. The meeting of these diversified wants imposes upon the graduate instructor a weighty task. The ideal instruction for graduates presupposes three things—(1) a higher and better general medical education on the part of the practitioner, (2) a rigorously careful selection in the choice of instructors, and (3) a modification of the best undergraduate methods to suit the needs of the older men. Teaching positions should be filled only by men of education and promise, willing to teach for teaching's sake and for the advancement of sound learning rather than for personal motives.

As to the great extension of the practice of aryngology of late years, while this might for a while tend to lower the general standards of excellence, such a result should only stimulate us to attain higher planes of excellence, while from the vast body of new aspirants would arise men who would carry still further upwards and forwards the light of truth for the illumination of mysteries thus far hidden to ourselves.

Dr. JOHN H. LOWMAN (Cleveland, Ohio), the delegate of the Association to the recent International Congress at Rome, gave a report on the work of the section on Laryngology of that body, and expressed his conviction of its high character.

The scientific business of the session was opened by a paper by Dr. W. E. CASSELBERRY (Chicago), entitled *Nasal Polypus; its association with Ethmoiditis and its Treatment by Resection of the Middle Turbinated Body*.

An analysis of forty cases confirms the view that nasal polypus is but a symptom or concomitant of other nasal maladies, the most frequent being various forms of ethmoiditis. Two previous papers by the author are reviewed, in the first of which he advised a vigorous surgical treat-

ment, having for its object, first, access to and then eradication of the actual seat of attachment, most frequently in the vicinity of the hiatus semilunaris. For the eradication of the attachments upward beneath the middle turbinated body, he has recently substituted for the cautery point, before recommended, a small sharp curette, with which the borders of the hiatus and the bulla ethmoidalis are well scraped.

In a supplementary paper in 1891, he advised, as a part of the radical treatment, removal of the antero-inferior part of the middle turbinated bone, in order to give freer access to the actual point of development. Additional experience with this operation has but confirmed its utility and demonstrated its harmlessness. The middle turbinated body, a process of the ethmoid bone, is rarely itself in a healthful condition in these cases, a phase of the subject which is exemplified in the present paper. Furthermore, it appears from the cases reported as typifying the various forms of associated ethmoid disease, that polypus is commonly one of the earliest prominent manifestations of ethmoiditis, and resection of the middle turbinated bone, in addition to its efficacy for the polypi themselves, is regarded as a prophylactic measure against the development of the more serious suppurative type of ethmoiditis and infection of the maxillary, frontal, and sphenoidal sinuses, by facilitating drainage of the ethmoid cells.

A clinical classification of the various conditions which are found associated with and underlying the formation of nasal polypus is deduced from an analysis of the forty cases, and a list of cases typifying the characteristics of each group is detailed.

Type I. *Nasal Polypus with Hypertrophic Rhinitis* is characterized by simple enlargement of the inferior and middle turbinated bodies, and without evidence of ethmoiditis other than the suggestiveness of the polypi. Drainage is defective and the accumulation of muco-purulent secretion in the middle meatus seems to encourage polypoid growth. Recovery without recurrence follows removal of the polypi and reduction of the hypertrophied turbinated bodies by the cautery. Only six of the series of forty cases were of this type.

Type II. *Nasal Polypus with Simple Myxomatous Ethmoiditis* is characterized by great enlargement of the middle turbinated bodies, which have a glistening aspect and a pultaceous touch, indicative of œdematous or myxomatous degeneration, and pressure in the ethmoid region, productive at times of infra-orbital swelling and broadening of the base of the nose. After resection of a considerable part of the middle turbinated bone the muco-periosteum of the parts of the ethmoid bone thus exposed—the borders of the hiatus, bulla ethmoidalis, etc.—are found in a state of myxomatous degeneration, and covered by polypoid excrescences, the same extending upwards into the ethmoid cells. Fourteen of the series of forty cases were of this nature, and five of them were subjected to the operation of resection of the middle turbinated bones.

Type III. *Nasal Polypus with Vaso-motor Ethmoiditis* is regarded as a variation of type II., and presents the same evidences of myxomatous degeneration of the muco-periosteum of the ethmoid region. In addition

asthma was a universal symptom, which to some extent influenced the grouping together of these particular cases under the conviction that asthma of this particular variety was a similar vaso-motor tumefaction of the bronchioles.

The group comprised nine cases, and four of them suffered from hay fever, which further indicated the possession of a fundamental neurotic habit. They were all affected by super-sensitiveness to the extent that various irritants, such as dust, coal-smoke, fog, aroma from horses, etc., would suffice at any season to excite a form of nasal tumefaction suggestive of vaso-dilatation, and in most cases the ethmoid region seemed especially sensitive.

Type IV. *Nasal Polypus with Suppurative Ethmoiditis* is characterized by a purulent discharge from the ethmoid cells, coexisting frequently with empyema of the maxillary, frontal and sphenoid sinuses. It is regarded as a sequel to type II. or type III., suppuration occurring only after myxomatous tissue has accumulated sufficiently to obliterate the natural drainage channels, which view is substantiated by a case in which suppuration of the frontal sinus occurred in conjunction with obliteration of its outlet. This group comprises six cases, of which five were subjected to resection of the middle turbinated bone on one or both sides in addition to other measures.

Type V. *Nasal Polypus with Necrosing Ethmoiditis*.

Dr. Woakes' contention that nasal polypus indicated a chronic inflammation of the ethmoid is in a large measure substantiated, but that necrosis or even caries of bone is a "usual" accompaniment is not confirmed, so that it would seem wise to limit the term "necrosing ethmoiditis" to the class of cases in which necrosis or at least caries actually exists. Only five cases were accompanied by unmistakable necrosis of bone.

Concerning the *technique* of resection of the middle turbinated bone the author has devised curved serrated scissors, with which to cut the bone for a variable distance backward, when the operation, if not complete, can be finished by the snare or sharp forceps. The resection need not be completed at one sitting, but is more often accomplished fragment by fragment, the latter method alone succeeding when the middle turbinated bone is greatly enlarged and closely impacted within the space. Conversely, if the middle turbinated body be of normal contour, and presents no impediment to drainage, to the transmission of light, or to instruments, there will be then no occasion to interfere with it.

The discussion was opened by Dr. W. H. DALY (Pittsburg). He believed that in severe cases of formation of polypi the subjacent bone from which they grew should be removed. The bone always degenerates in old cases, and any treatment other than its removal is useless.

Dr. J. H. BOSWORTH (New York) could not regard ethmoiditis as the most frequent cause of polypi. The amount of necrosis in these cases is over-estimated. Many cases called necrosis are not so. Woakes has been in error in this respect. The fœtid odour often noticed is not that of decaying bone, but is due to one of the fœtid hydrogens arising from retained pus. The cause of the affection frequently is that the inflammatory process takes on a myxomatous type. "Vaso-motor" ethmoiditis is

a bad term. Many of the so-called "reflexes" from trouble in the ethmoid region should really be looked upon rather as symptoms of the disease.

Dr. J. H. BRYAN (Washington) did not look upon necrosing ethmoiditis as necessarily the cause of polypoid formation. Spiculæ from the turbinated bone are often mistaken for necrosis. Myxomatous degeneration is the proper term. In advanced cases Dr. Casselberry's plan of treatment is the only logical one.

Dr. W. PEYRE PORCHER (Charleston, S.C.) had seen one case of severe hæmorrhage result from removal of the middle turbinated bone with the hot snare.

Dr. J. C. MULHALL (St. Louis, Co.) believed that recurring polypi meant bone disease. He had read Grünwald's recent monograph on diseases of the nasal sinuses with much satisfaction, and he believed in the soundness of the views expressed by this author.

Dr. JONATHAN WRIGHT (Brooklyn) called attention to the dangers attending operations in the ethmoid region. No amount of anatomical foresight can always prevent them. The bones are thin in some subjects and thick in others. It is difficult to remove the anterior part of the middle turbinated bone. Even if we do, we do not thereby reach the ethmoid cells, and consequently do not meet all the needs of the case.

Dr. C. C. RICE (New York) thought that the traumatic atrophic condition frequently left after operation was a much worse condition than partly occluded upper sinuses. The snare sometimes removes more than we desire, and occasionally pulls away the entire middle turbinated body.

Dr. J. N. MACKENZIE (Baltimore) believed that Dr. Casselberry over-estimated the importance of ethmoiditis. We forget that the position of the polypi depends more on their anatomical relations than on anything else. He did not regard the drill as a suitable instrument for these cases. Lack of anatomical knowledge would account for much of the reckless intra-nasal surgery seen at the present day. Removal of polypi is followed by a subsidence of symptoms, and a reasonable time should elapse before the ethmoid bone is attacked. Local medication is often serviceable.

Dr. J. W. HINKLE (Buffalo), reported the case of a woman, aged fifty years, with an enlarged turbinated against the septum, and asthmatic. Under cocaine it was removed with scissors and snare. Immediately she felt a sharp pain in the left parietal region. Three days later she was demented and so continued for a week. There were no symptoms of active brain inflammation. In the course of a fortnight consciousness returned, and she presented some symptoms of brain abscess. Death resulted in a short time, and on autopsy an abscess of the size of a pigeon's egg was found in each frontal lobe of the cerebrum, with pus disseminated through the remaining brain structure. There was none over the cribriform plate. No examination of the heart could be made. The possibility of a cardiac embolus as a cause of the brain lesions had been thought of.

Dr. BOSWORTH had seen ninety-eight cases. All chronic cases require radical measures. He prefers the drill, as he finds it more delicate than any other instrument. The curette does not reach the ethmoid cells. He had not seen bad results from his method. Severe hæmorrhage would occasionally happen, but as a rule nothing worse happened than the failure to cure. The *vis medicatrix nature* does not exist in this region, and the honeycombed cells are full of diseased tissue.

Dr. CASSELBERRY, in closing the discussion, remarked that he had seen only one case of severe hæmorrhage. Bleeding could be easily controlled by tampons or the cautery.

Dr. JONATHAN WRIGHT (Brooklyn) read a paper on *Papillary Hypertrophy of the Nasal Mucous Membrane compared with a true Papilloma*.—The writer stated that much confusion existed in rhinological literature from the loose use of the term “papilloma” as applied to intra-nasal excrescences. This is particularly the case with the Germans, who, when speaking of nasal papilloma are obliged to add that they do not mean true papilloma, but Hopman’s papilloma. The latter has described a pathological formation which is not a papilloma in the accurate sense of the term. The true variety is, in the nose, of rare occurrence.

Illustrative drawings were exhibited showing the gross and microscopical differences between the two conditions. The nasal growth came from the middle of the lower turbinated, and the true papilloma from the junction of the uvula and soft palate, where such growths are common enough. The latter consisted of a thick stem having irregular projections. Some of the latter, conical in shape, sprang directly from the central stalk. The majority were divided into secondary stems and projections. The whole mass resembled a tuberous vegetable at the budding stage.

A drawing of the nasal growth revealed a symmetrically rounded mass, subdivided by crossing lines into more or less regular portions. The general appearance was like that of the “mulberry” hypertrophy of the posterior parts of the lowest turbinated. The mass as a whole, though sessile, was freely movable. The cold snare was used in getting it away, and though three-quarters of an hour were occupied in severing its attachments, sharp bleeding followed three hours later.

In comparison with the true papilloma almost any fold of the nasal growth was in connection with the central mass, and there was no resemblance to a “budding” process. There was no thickening or irregularity of the surface epithelium. In the papilloma, no glands were found, the capillaries were small, and there was a slight branching framework of connective tissue which was everywhere overlaid by regularly striated layers of flat epithelia.

The nasal growth consisted, in fact, of all the constituent parts of the mucous membrane of the inferior turbinated body. There was marked dilatations of the venous sinuses, glands were found, but were scanty.

A marked increase was noted in the fibro-connective tissue, which at the periphery was divided into regular processes covered by epithelium and separated from each other by depressions, which gave the whole a

nodular surface. We must regard these growths as papillary hypertrophies of the erectile bodies of the lowest turbinates. Such enlargements are the outcome of a continuous and exaggerated dilatation and contraction of these sinuses in a stroma, largely deprived by chronic inflammation of its normal amount of muscular and elastic tissue.

A paper on *The Use of Metallic Electrodes in Nasal and Post-Nasal Disease* was read by Dr. C. C. RICE (New York).—This plan of treatment is based upon the "cataphoretic" properties of the galvanic current. It is known as interstitial or metallic electrolysis. The positive pole is made of some easily oxidizable metal as zinc, copper, or iron, and when the current passes new salts (oxichlorides) of these bases are formed and carried through the tissues. The experiments of Gautier and others in France, corroborated by the reports of Morton and Cleaves in America, have proved that these new salts are without injurious effect upon the tissues. These effects are not necessarily germicidal, though it has been determined that the current has an inhibitory effect on the culture growth of certain germs. Shirley and Delavan have previously made use of this therapeutic agent, the former on pharyngeal surfaces and the latter in atrophic rhinitis.

When the current is passed in this manner, moistened cotton being wrapped around the positive (copper) pole, the new salt (oxichloride) is actually carried into the tissues; it is in this way more efficient than solutions applied merely to the surface; the pathological foci are better reached, as it is in the submucous tissues and not on the surface that such foci are developed—the stimulating properties of the current itself, and finally there is the usual electrolysis of the tissues themselves.

Dr. RICE has used this remedy in some twenty cases; six were cured, and three-quarters of all the others greatly benefited. Among the clinical conditions treated were various forms of nasal disease where, after the removal of all offending material, there was a continuous hypersecretion; also irritable cough from laryngeal and pharyngeal catarrh. Enlarged turbinates could be pierced with a copper needle (cupric puncture), the negative pole being the usual flat sponge placed on some indifferent point, preferably the nape of the neck. The positive pole might be probe-shaped and rubbed through the nose.

Succeeding the application there is a temporary coryza rarely lasting over twenty-four hours. In three cases of epistaxis from septal erosions, he has found this agent preferable to the galvano-cautery. It will also reduce swellings of the anterior turbinates, the copper needle being in his view preferable to the caustic acids.

In the discussion of this paper Dr. J. WRIGHT stated that he had treated eight or ten cases of atrophic rhinitis with the galvanic current, but had obtained no better results than with simpler means.

Dr. A. W. DE ROALDES (New Orleans) spoke of the difficulty of securing standard and reliable milliampère metres. He has had good results with electrolysis in post-nasal growths and prefers the bipolar method.

Dr. JOHN O. ROE (Rochester) had seen good results from the current

in atrophic rhinitis, but he believed they were referable merely to stimulation of nutrition. Ampère metres even if good are unreliable, because the amount of resistance is a personal equation for each patient with regular daily variations.

Dr. W. H. DALY (Pittsburg) believed that all the ampère metres in the market were as unreliable as gas meters. The physician should always test the current on himself before trying it on the patient.

Dr. CASSELBERRY doubted the efficacy of copper solutions on infiltrations of any kind.

Dr. RICE stated that he had rarely exceeded five to ten milliamperes and that cocaine had been previously applied. But little pain had been experienced in any of his cases.

Second Day.—Thursday, May 31st, 1894.

Dr. THOMAS R. FRENCH (Brooklyn) read a paper entitled *Observations on some of the Results of Cutting Operations on the Nasal Septum*. In this paper attention was directed to two conditions—perforations and membranous adhesions. In regard to the former, it is generally admitted that the methods at present employed to correct septal deviations are not always successful. Dr. French therefore wished to present for discussion a question which he had often revolved in his own mind, viz., if we cannot in any other way obtain a successful result is it ever justifiable to purposely perforate the cartilaginous septum?

From his study of perforations made by others, and from his own experience and that of others, in cases of perforations with raw edges, he believed that with proper care in the after treatment deliberate perforation could be made without injury, and in a certain class of cases with great relief. If we cannot obtain a breathway through both nostrils without leaving a hole in the septum, it is allowable to make such a hole if we can impress upon the patient the absolute necessity of leaving the parts alone until healing is complete, and if we can be sure that he or she can be kept under observation until the edges have healed. Unless these two conditions can be obtained it is an unjustifiable mode of operating. Dr. French excepts, however, from this statement perforations (near the entrance of the nostrils particularly in a septum bent obliquely across both openings) by the Blandin punch.

As to membranous adhesions, after a review of the causes which are recognized as productive of this annoying sequel of this operation in the nasal passages, attention was called to a fact hitherto overlooked, viz., that cut surfaces on the septum will become adherent to scar tissue on the turbinated bones made by a previous galvano-cauterization. Therefore, in all fresh cases requiring treatment, and which have never been previously operated upon, where there is need of destroying turbinated tissue and of removing cartilage, the latter should be done first. Then in a month or so, when it is certain that the mucous membrane has completely reformed, the turbinated can be safely attacked. If patients object to a cutting operation on the septum, but are willing to

have the turbinated hypertrophy destroyed or removed, we should use snare or acids, so as to avoid leaving a surface liable to become adherent to a wound opposite, where a cutting operation might be done on the septum at a later period.

Saws with unprotected ends and in unskilful hands are very liable to do damage in narrow nasal passages, as are also trephines and cutting forceps. All instruments for septal operations should be so constructed as not to be liable to wound the outer wall of the nose. In the use of the saw it is a good rule to begin the section by cutting upwards and finish it by cutting downwards, but whether it is begun from above or below, we should always finish by a cut in the opposite direction. Thereby we can remove a maximum amount of tissue, and run a minimum amount of risk of wounding the outer nasal wall.

The discussion was opened by Dr. F. H. BOSWORTH.—He had been credited with the statement that he had had only one perforation from the use of the saw. What he really did say, however, was that in his first one hundred and sixty-nine cases he had had only one perforation. Since then he had had a great many. No particular harm will result if the perforation is in an antero-posterior direction, or is so shaped that it does not present any salient edge or angle to the irritation of the incoming air.

Dr. JOHN O. ROE saw no danger of falling in of the nose from perforations in adults, but the danger was a real one in the case of children. Perforation from operation is bad surgery, as we merely cut through what we ought in reality to cut away. His improved septal forceps contained a screw in the handle, so that the blades could not be so closely approximated as to cut through the mucous membrane. The intact membrane on the sound side acted as a splint to hold the septal fragments together until healing should ensue.

Dr. W. H. DALY would mention perforations only to condemn them. Cases treated in that way do not remain cured. The causes of deviation include many minor factors, such as lying on one side, the use of the handkerchief, etc. He had tried Roberts' "pin" operation, but with poor results.

Dr. C. M. SHIELDS looked upon the thickening which accompanies these deviations as a provision of nature to limit further bending. If we remove it she is apt to reproduce it. As to instruments he prefers the knife, as punches comminute too much. He makes parallel antero-posterior incisions, one above and one below the deviation, and joins them by a perpendicular cut through the latter. He has never seen perforation result from this procedure.

Dr. W. E. CASSELBERRY objected to perforation for æsthetic reasons, though where the opening is merely an operative accident we need not worry. He could not agree with Dr. French as to the fact that adhesions resulted only where two raw surfaces came together. Naso-pharyngeal tumours would often adhere to surrounding surfaces, probably from pressure. As to hæmorrhage, we must expect it at times from the septum as well as from the turbinated bones.

Dr. M. J. ASCH rehearsed the steps of the operation devised by him,

and described before the Association some years ago. But few failures had resulted in his experience from it.

Dr. J. W. GLEITSMANN found the failure to relieve symptoms in many septal operations to depend upon a continued enlargement of the posterior parts of the lower turbinates. The latter may swell up from the rarefaction of the air caused by the septal obstruction.

Dr. S. W. LANGMAID said that our operations should certainly be so conducted as to leave our patients better than before we began treatment. Adhesions are frequently set up after caustics, which produce corrosive action followed by the formation of granulation tissue. We should never operate unless we know that we can closely follow up the case.

Dr. W. PEYRE PORCHER had seen severe hæmorrhage result from breaking up adhesions. In such cases iodoform gauze makes the best tampon.

Dr. M. R. BROWN (Chicago) believed that bleeding in septal operations sometimes came from an injured turbinated, but the septum may bleed furiously. Twice only has he found it necessary to perforate the septum, and he was careful to do it from the concav etowards the convex side.

Dr. W. H. DALY (Pittsburg) read a paper entitled *A Plea for Early Operation in the Diseases of the Antrum of Highmore*. He advocated early opening (if necessary) for diagnostic purposes. As the proper operative site, he prefers a point just above the second bicuspid tooth, as he finds that the antrum wall has a certain resiliency at this point. The opening will be sufficiently covered by the cheek, but sometimes a little food will escape into the cavity. After operation, constitutional symptoms sometimes develop. The opening should be of the diameter of a small goose quill. Partitions in the antrum should be thoroughly broken down. A small nozzle bent to the proper curve, with an ordinary bulb syringe, form an efficient and simple irrigator. Dr. Daly has treated twenty-seven cases since 1882. In several of them he has found pain over the eye to be a prominent symptom. It is possible for patients, after having taken a mouthful of the irrigating fluid, to force it by compression with the tongue, cheeks and lips up through the artificial opening into the antrum, whence it escapes through the natural orifice into the middle nasal meatus.

Dr. DE ROALDES had found but little trouble in irrigation through the natural sinus opening. Artificial openings should be large.

Dr. BROWN preferred to make the opening low down between the roots of the teeth. In this way we pierce a portion of the alveolus itself, and tap the antrum at its lowest point; can enlarge the opening if necessary. Prolonged retention of the drainage tube will keep up the discharge. Irrigation through the nose, while possible, is not practicable.

Dr. J. H. BRYAN made a plea for conservative surgery on this cavity. If necessary to make a diagnostic opening, we should follow Moritz Schmidt, and select the inferior or middle meatus. The prognosis depends on past history and duration. The mildest fluids, as boric acid solutions, alone are permissible for irrigation purposes.

Dr. SHIELDS had often seen the discharge cease on removal of the drainage tube. Unless the patient is syphilitic, the opening made will always close in, no matter how large.

Dr. CASSELBERRY believed that in many cases of antral disease we have to do with coexisting affections of other cavities. Consequently, mere drainage of the maxillary sinus can never keep it clear of the dripping from adjacent cavities. The pain above the eye, mentioned by Dr. Daüy, might come from ethmoidal disease.

The paper was also discussed by Drs. PORCHER and J. C. MULLHALL.

Dr. A. W. DE ROALDES (Orleans) reported a case of *Compound Follicular Odontoma, involving the Right Antrum of Highmore, and obstructing the corresponding Nasal Fossa*; with a new apparatus for administering anæsthetics, specially adapted to operations on the mouth, nose and throat.

These cases are very rare in American literature. His patient, a boy nine years old, strong and healthy, was first seen by the family attendant in July, 1892. His right upper jaw presented two points of disease: one a fibrous growth, occupying the socket of the central incisor tooth, and the other a hard osseous tumour, carrying a considerable portion of the palate bone back of the missing canine tooth, extending posteriorly along the internal plate of the alveolus to near the tuberosity of the maxilla. Both growths were removed, but in the spring of 1893 the osseous tumour had returned, and was again operated upon. A short while after, necrosis of the bone was found at the seat of operation, and the antrum was found opened.

When examined by Dr. de Roaldes, a hard bony tumour was found occupying the right cheek, depressing the vault of the palate, and encroaching upon the right nasal bone, fused with the alveolar border at a point corresponding with the missing canine tooth. A diagnosis of benign neoplasm was made, probably an osteoma, but with the possibility of an odontoma, this mooted point to be cleared up by the patient's previous history as to teeth-eruption, which history was unobtainable at the time. A radical surgical procedure was performed March 4th, 1894, by a modified Vollet's operation. The whole anterior wall of the antrum was removed from the nose to the tuberosity, from the alveolar border to the orbital floor, and the main mass of eburnated growth chiselled out from a place corresponding to the canine fossa. On its surface were tufts of hard adherent tissue. A large number of smaller ones, to the number of fifty or more, some of them tooth-shaped, were gouged out in all directions. After thorough curettage the cavity was packed, the parts carefully sutured and bandaged. Patient made a rapid recovery, and returned home March 23rd. Twelve weeks later the cavity was two-thirds filled and a photograph shows scarcely any disfigurement.

Microscopical examination made by Dr. Borden, U.S.A., shows the tumour to consist of a hypertrophic tooth capsule, which has ossified sporadically in places, producing a number of denticles (50), which originally had in all probability been bound together by the periosteum,

the denticles being imbedded in the fibro-vascular structure much as plums are imbedded in a plum pudding. The denticles consist entirely of cementum, and the origin of the tumour was probably connected with the unerupted canine tooth. No dentine or enamel could be found in the specimen. The case resembles very closely those of Sims, Callender and Matthia, figured in Sutton's work (1893).

The main points of interest, on which Dr. de Roaldes laid special stress, were the following :—

1. The sure character of the tumour, which contained the largest number of denticles on record, as far as known.
2. Its very uncommon origin in an unerupted canine tooth.
3. Its location in the upper maxilla, and as in the above-mentioned cases on the right side.
4. The coincidence at one time with another fibrous tumour developed at the site of the right upper central incisor, probably itself a fibrous odontoma.
5. The fact that odontomata have often been taken for exostoses, fibroid tumours, etc.
6. The difficulty of the diagnosis, especially when the growth is imbedded in the maxilla. The consideration of the duration of the disease, the age of the patient, and especially the absence of one or more teeth will help to insure a precise diagnosis.
7. The propriety of avoiding in these cases a dangerous operation, as has been done in the removal of the maxilla, when chiselling and enucleation will generally suffice.

Dr. DE ROALDES concluded by presenting in the name of Dr. Souchon, of New Orleans, an apparatus devised by him for administering anaesthetics, and which had been of great service in the present case.

Dr. CHARLES M. SHIELDS (Richmond, Virginia) presented the next paper on *Extraction of a Cockle Burr from the Larynx*.

The patient, a farmer, while riding through the woods, after some of his dogs, was forced by the bushes to dismount, and continue the pursuit on foot. This exertion made him breathe rapidly through the mouth, and he was suddenly stopped, by feeling that he had drawn something into his throat that prevented easy breathing. The foreign body was found to be a burr lying in the glottic space at the anterior commissure, and just at the lower level of the cords. Its long axis was lying antero-posteriorly, and it was fastened firmly in position by the closing of the glottis on its spurs. It had been grasped just in the act of passing through. The patient had a most sensitive throat, and manipulation was thereby rendered the more difficult.

After he was sprayed with cocaine, Mackenzie's and other forceps opening laterally were repeatedly tried without success, because of the inability of getting the blades between the burr and the bands on either side to which it was so closely adherent. Then a wire loop through a curved canula was likewise unsuccessfully tried, the rapidly contracting vocal bands flattening the loop. Cotton twisted on a curved probe with the hope of entangling the prickles in its meshes met with no better

success, and a curved, blunt curette passed below the burr failed to extract it on being withdrawn.

Just before doing a tracheotomy, which had now been decided on, a Schroetter tube forceps was again tried. This time, after pushing the closed blades between the cords, they were forcibly opened as the cords tightened on them, and being drawn forwards the blades slipped over the burr, which was withdrawn entire.

Three Cases of Laryngeal Neoplasm. Clinical report by Dr. CHARLES H. KNIGHT, New York.

Case I.: Diffuse sub-glottic myxoma. Partial removal through the mouth with Mackenzie's forceps. Tracheotomy under cocaine, and radical extirpation of the growth through the wound. Recovery without a bad symptom. No recurrence.

Case II.: Papilloma of the larynx. Removal with Mackenzie's and the Schroetter-Türk forceps. Electric cauterization of the base of a growth attached beneath the right vocal band. Restoration of voice within three weeks, after nearly eight months of previous aphonia.

Case III.: Multiple papilloma of larynx. Removal with Mackenzie's forceps. In twelve months second recurrence and removal. Five years after the tumours again appeared, and were again removed.

Dr. ARTHUR A. BLISS, of Philadelphia, reported *Two Cases of Malignant Neoplasm of the Larynx.*

Case I.: Squamous epithelioma of larynx. Male, forty-six; previous history negative. For two years, hoarseness; enlarging glands and increasing respiratory difficulty; radical operation refused and trachea opened through two upper rings; heart sounds suggestive of atheroma; considerable albumen in urine, but no casts. Previous examination showed left ary-cartilage and vocal band so swollen that subjacent cord was invisible; right cord forced back into semi-abduction; odynphagia wanting.

During primary stage of anæsthesia (ether), severe glottic spasm ensued; was referred to ether, or possibly accumulation of secretion. After operation, remained weak; had anginoid seizures, and died in four weeks from angina pectoris. Larynx shown; autopsy revealed thickened pericardium, fatty heart muscle, and lesions of chronic nephritis.

Case II.: Small round-celled sarcoma of the larynx. Male, fifty-three. Symptoms as in Case I. Pharynx was normal; epiglottis appeared as a fungoid mass; no visible laryngitis; right arytenoid cartilage swollen and œdematous; some swelling in the supra-hyoid region, but none over the thyroid cartilage; radical operations refused; high tracheotomy performed.

Dr. BLISS expressed the view that both of these cases would have been suitable for a partial laryngectomy.

An Interesting Case of Laryngectomy by a New Method was reported by Dr. HENRY L. SWAIN (New Haven).

The operation was performed on a German, aged forty-two, who had an epithelioma which had followed on a simple fibroma of the cord. The

latter was known to have existed for a year previous. The epithelioma increased in size, so as to fill the entire larynx, so that tracheotomy was performed under cocaine on March 5th. On March 18th the larynx was removed by Dr. W. H. Carmalt, of New Haven. The operative *technique* was as follows:—Incision in median line from hyoid bone to sternum; low tracheotomy; Trendelenburg sponge canula; cross incision from top of linear cut, outward to edges of sterno-mastoid muscles; larynx laid bare and bleeding checked; a stout bistoury passed behind larynx between it and the trachea, and by a strong anterior cut liberated from the latter; larynx hooked up and dissected out from below upwards, the anterior wall of the œsophagus being carefully followed until the level of the arytenoid cartilages was reached, when the direction of the dissection so as to cut across in such a way that a part of the mucous membrane of the arytenoids and ary-epiglottic fold was preserved; epiglottis then cut across, larynx freed, and all bleeding checked; epiglottis then sewed on to the anterior wall of the œsophagus, thus closing in the pharyngeal cavity and cutting off all communication from the wound in the neck. Subsequently the latter was sewed up tight, except enough of the lower part of the median incision to allow of taking in the upper rings of the trachea, which latter were sewed into connection with skin flaps, making a circular opening, turned upwards and forwards. Wound dressed with plain dry dressing; no tubes left in trachea; no bad sequelæ from operation, lasting from two to three hours.

Subsequent healing of the wound followed without adventure, except a large slitch abscess above and back of the trachea, which healed in a few days. The temperature rose to 101° F. on the second day, and gave no trouble thereafter. The internal wound at the base of the epiglottis healed by first intention, and the patient could swallow (sterilized) water from the first with ease. At the end of the week he could take fluid food of all kinds (tube meanwhile), and at the end of another week was placed upon full hospital diet. By this time both internal and external wounds were in excellent condition. He could make no audible sound at first, but later hissing consonants were perceived, and now (June, 1894) single words and brief phrases can be distinctly understood, even with the back turned, so that lip-reading is eliminated. The voice is as yet only a whisper, but it has gained so much in strength as to promise more. He is now working at the carpenter's trade, and most of the time wears a tube in the trachea.

There was no discussion of these reports.

Third Day.—Friday, June 1st.

The first paper of the closing session was read by Dr. W. C. GLASGOW (St. Louis, Mo.) and entitled *Exudative Pharyngitis*. He described the case of a child ten months old—large and previously robust, who took cold and had otalgia without fever. Two days later a coryza developed, with a temperature running to 104° and marked morning remissions. It had no regular course, however, and became so irregular as to resemble

the temperative curve of a septic process. Mucus formed from the nose in torrents, so that cloths had to be placed in position to absorb it. It blistered the nares and the skin wherever it touched it. The excoriations soon became covered with a whitish pellicle. The same secretion came also from the throat, where the fauces, uvula, soft palate, and pharyngeal wall were the seat of similar whitish deposits. There were none of these in the nose. They were glistening and elevated, but left no bleeding surface after removal. They looked not unlike blisters, with solid albuminous contents. The exudation on the uvula was regarded as due to the results of mechanical interference. Aphonia was prolonged, and dyspnoea urgent. On attempts at swallowing fluids a part was returned through the nose; deglutition was difficult. The skin deposits were like those on the mucous membranes, except that their edges were raised. Glandular enlargement was wanting; in fact, the deposits suggested diphtheria or scarlet fever in their general appearance.

The mucus was examined, and found to contain streptococci, but no Loeffler bacilli. The case was looked upon, therefore, as a "streptococcus throat," and regarded as one of the protean forms of influenza.

For treatment, salicylate of soda, salol, and brandy were given internally, while hydrogen peroxide was used locally. The skin lesions did well under aristol. A suppurative otitis developed during convalescence. The whole duration of the case was three weeks.

Dr. WRIGHT doubted the causative relation of the streptococci in this case. They were of very common occurrence in all throats. He had not seen about New York the condition of solid oedema which had been observed in other cities in connection with pan-demic of the gripple.

Dr. GLASGOW replied that he had cases from Eastern cities. For the solid oedema, benzoate of soda had given excellent results.

Dr. MURRAY had seen one case of solid oedema in a hospital nurse following a severe attack of gripple.

The next paper was read by Dr. F. J. KNIGHT (Boston) on *Singers' Nodes*.

Dr. KNIGHT spoke of the little nodule as large as a millet seed or larger appearing on both vocal cords at about the junction of the middle and anterior thirds after strain of the voice by prolonged use or wrong vocal method. This manifestation should be considered clinically as a separate entity, although pathologically, as far as examinations hitherto made have shown, the nodule is of the same nature as those occurring in the diffuse form, to which the term "trachoma," sometimes applied to the single nodule, should be restricted.

Whether the term "chorditis tuberosa," which has also, unfortunately, been applied to the diffuse form as well as the single nodule, should be retained for the latter is doubtful, as often there is no general chorditis; but if it is, its use should be restricted to the single nodule.

In regard to the treatment, Dr. Knight said that in the cases he had met with up to this time, by rest and astringents (if there was also inflammation of the surrounding mucous membrane), the voice had been so far restored that he did not feel justified in risking cutting operations;

but if after this treatment there should be still in any case no useful voice he should not hesitate to employ Rice's guillotine and remove the protruding portion of the growth, if it could be engaged, hoping that the remainder would be the more readily absorbed.

In conclusion, the reader stated that he had been unable to learn the ultimate condition of the singing voice when an operation had been performed, and hoped that the discussion might furnish some facts in this regard.

Dr. GLEITSMANN had used the galvano-cautery on these nodes, and was satisfied with the results. Chromic and trichloroacetic acid were also of service.

Dr. LANGMAID said that we had to do physically with a definite circumscribed tumour. The condition occurred more often in women, who generally did well unless chondritis ensued. These nodules are not vascular, and are the result of a previous chondritis. He had seen six or eight in all. He would doubt the causative relation of a wrong vocal method, especially as we were not yet agreed as to what the right vocal method really is. The condition occurs in singers, who are so little affected by it that they are still able to meet artistically the demands of a critical public. Where the voice is at first affected it frequently recovers sufficiently to be used on the dramatic stage. Surgical procedures would not necessarily impair the voice unless much injury was done to the edges of the cords. Curetting might suffice.

In reply to a question by Dr. Porcher, Dr. Knight stated that these growths do not become papilloma.

Dr. MULHALL had seen four such cases. The first one, seen at Stoerck's clinic in Vienna, had been heated with solid silver stick and steam inhalations, and made a brilliant recovery. One of his four patients had been a boy, only seven years old, but he was a singer.

Dr. WRIGHT stated that he had narrated one case before the Section of Laryngology of the New York Academy of Medicine. His patient, a young woman, singer, had been found to have a suspicious spot at one pulmonary apex. He discussed the possible relation between the two conditions. They might be the result of a dyscrasia, or the node might proceed from the direct irritation of the lung lesion.

Dr. SWAIN had treated one case with silver stick. The voice had not improved, but the cord looked fairly well except at one point.

Dr. MACKENZIE had treated one case of the tuberous variety with a concentrated lactic acid solution.

Dr. FRENCH dwelt upon the necessity of long-continued local treatment. In one woman who had over used her voice several nodes were present. The appearance of the cord was such as to suggest previous violence thereto. He had treated her three times a week for over two years and a half with weak astringent. The purity of the voice was completely restored, but the patient tired more quickly than before. The edges of the vocal bands were straight, but there was a little thickening on one side. He did not believe that the condition had any relation to tuberculosis.

Dr. W. R. SIMPSON (New York) believed that the condition arose

from over use of the voice rather than from a wrong vocal method. The direct cause was either a laryngitis or hæmorrhage from vocal strain, whilst hæmorrhage would lead up to nodule formation. In one of his cases there was a linear hæmorrhage on the under side of the cord, not visible in ordinary phonation, but brought up into view in the median line when the high notes were sounded.

The PRESIDENT (Dr DELAVAN) did not believe in any relation between the condition and tuberculosis, though it might, of course, coexist with this most common of all diseases. Surgical measures should be resorted to if possible. The node may appear in acute laryngitis, but the relation of such a node to the chronic variety now under discussion he did not know.

Dr. A. W. WATSON (Philadelphia) reported a case of *Sarcoma of the Tonsil*.

His patient was a woman, aged fifty-three years. She had been well till last Christmas. Suffered then with severe sore throat, probably a quinsy; thinks she spat up a little pus, but obtained no relief: continuous severe pain running to ear; moderate swelling in left tonsil and anterior faucial pillar, the latter overlaying and being adherent to the former; engorged capillaries visible over the surface of the swelling; no ulceration or infiltration of surrounding structures; one small gland enlarged at angle of jaw.

Internal medication of various sorts gave no relief; free bleeding, but no pus, followed deep incision; a bit of tonsil tissue removed for examination gave a diagnosis of round-celled sarcoma.

Six weeks later, tonsil held out with vulsellum, and under cocaine, together with adherent faucial pillar, removed by short successive strokes of the galvano-cautery knife. No difficulty in keeping the latter hot, and no hæmorrhage. Pain immediately disappeared. Site of operation covered with a thick slough, clearing off in a week.

Three weeks later, no odynphagia: pain in ear nearly gone; gland has cleared up. Three months later, still doing well, with no recurrence. Noteworthy features of the case were the sudden onset of symptoms, with pain and dysphagia, though there was no infiltration or ulceration. The knife (cautery) was preferred to the snare, as it was desired to remove pillar as well as tonsil.

Importance of an Early Diagnosis of Malignant Tumours of the Throat. Paper by Dr. J. W. GLEITSMANN (New York).

The author stated that he did not desire to bring up the question of the possibility in cases so far advanced that the patient had to be left to choose slow emaciation after tracheotomy, or risk a probable death by any attempts at removal.

At the present time there are three distinct methods of procedure which have resulted in a certain number of cures.

First: The endo-laryngeal operation allows of temporary removal, but at times effects a lasting cure. If patients only come under observation early enough, this method of treatment should be more often

followed than it actually is. The first operation of this nature for epithelioma of the vocal cords was done by Schmitzler in 1867, with no recurrence twenty years later. Reference was made by the writer to several other similar cases which are recorded in the recent literature of laryngology.

Second: Possible relief is promised by the method elaborated by Dr. W. B. Coley (New York), who has treated malignant tumours by inoculations with erysipelas products, or with its toxins as obtained by the cold process. (*See "Amer. Journ. Med. Sci.," May, 1893.*) One of Coley's patients had sarcoma of the tonsil which, under inoculative treatment, diminished greatly in size and had not increased after two years. Dr. Gleitsmann referred to the methyl-blue treatment of cancerous tumours. Internal administration of this remedy has afforded better results than its local application.

Third: Regarding modern surgical procedures, we may look upon the larynx and pharynx as analogous to the breast and uterus. The same general rules will apply to operations on both. But leading surgeons declare that by far too large a number of these malignant throat cases come into their hands only when patients are so far gone that operation is either impossible or extremely hazardous. With the exception of sepsis and trauma, delay in operating is the most potent factor for bad surgical results. Early diagnosis is, we all admit, often difficult, but when once made there is no justification or pardon for delay. In our conversation with patients we should take particular care to avoid the use of the word "cancer."

As to an operation, the case generally goes into the hands of a general surgeon, and no charge of selfishness, therefore, can be brought against the laryngologist for his advocacy of surgical measures. Each individual case must be decided on its own merits as to choice of methods. We may content ourselves with a tracheotomy, do a complete laryngectomy, or a modification thereof after the plan proposed by Solis-Cohen. Piniasek, of Russia, has operated thirty-seven times for laryngo-fissure with the head hanging down, and has had but two deaths, one from tuberculosis and the other from diphtheria.

Dr. GLEITSMANN summarized the results in thirteen cases which had been seen by him during the last few years. Six involved the pharynx and seven the larynx. Of the former, four were carcinoma and two (tonsillar) sarcoma. Of the latter, six were carcinoma and one alveolar sarcoma. One case of pharyngeal cancer was operated upon three months ago, and the patient feels well now; the others died. Of the tonsillar sarcoma, one was inoperable, while the other lived two years without recurrence after removal, but committed suicide from despondency at not being able to make a living. Of the several laryngeal cases, the six cancerous patients are dead, and the sarcomatous patient is living without known recurrence. Laryngo-fissure, with removal of the diseased tissue, was performed twice; unilateral, as well as total extirpation, each twice; and tracheotomy alone once. Death resulted twice from shock; twice from pneumonia (second and third days respectively). One had a recurrence after six months, and died from exhaustion; one with total

laryngectomy did well for several months, but died of an intercurrent appendicitis.

In discussing the two latter papers, Dr. WRIGHT spoke of the difficulty often met with in making an early diagnosis, even with the aid of the microscope, before the clinical features put the question beyond a doubt. He was politely sceptical as to the trustworthiness of Coley's results. Some people seemed immune to streptococcus inoculation, and with them any such treatment would have decided limitations.

Dr. SWAIN also emphasized the difficulty of making an early diagnosis, as shown in his own case.

Dr. SIMPSON inquired of Dr. Watson as to the amount of cocaine used in his case.

Dr. WATSON replied that a ten per cent. solution had been applied to the tonsil four or five times, extending over ten minutes. No toxic symptoms had been noticed.

Dr. CASSELBERRY called attention to the plan of removing malignant tonsils through incisions made from the outside of the neck. When the diagnosis is once made, it is folly to rely on endo-laryngeal methods. We should not raise false hopes in our patients by suggesting the possibility of a positive cure.

Dr. W. PEYRE PORCHER (Charleston) read a paper on *Neurasthenic Throats*, with illustrative cases.

He called attention to the close relations between the throat and lungs, and noted the fact that lesions in the one place might evolve symptoms in the other. Among the most frequent symptoms of neurasthenic throats are aphonia, reflex cough, and spastic conditions of the laryngeal muscles. Many of these cases seem to form a point of departure for a subsequent phthisis.

Dr. J. C. MULHALL would regard some of Dr. Porcher's cases as hysterical rather than neurasthenic. The latter condition undoubtedly affects, however, many of our throat cases, the patients going so far as to experience air hunger and a sense of self-annihilation.

Dr. HARRISON ALLEN (Philadelphia) demonstrated a *Series of Skulls of Cretins*. The persons from whom they were taken had lived and died in Philadelphia, but were undoubtedly cretins, judging from the peculiarities of the skulls. He showed the peculiarities of the latter as influencing the size of the nasal chambers. In all the hard palate was shortened, and the depth of the inferior meatus increased, while in one case the maxillary sinuses were greatly enlarged. The skulls were from the Wistar museum, and he believed that the cretins were more numerous in America than is generally supposed.

Dr. E. FLETCHER INGALS (Chicago) forwarded clinical reports as follows :—

I. *Cyst of the Larynx* cured by injection of carbolic acid.

Patient male, forty-three : some trouble with throat for past two years ; considerable cough for seven months, and special soreness in throat for past two months. When first seen he had hoarseness and a

continuous pain in throat. One brother had died of consumption, but there was nothing in patient's personal or hereditary history which seemed to account for his symptoms. General health was good, weight, pulse and temperature normal; deep loose cough, with a daily expectoration of half-an-ounce of muco-pus, which subsequently appeared to be the result of a subacute laryngo-tracheitis and bronchitis. Chest negative. Examination of larynx showed a large swelling of left ventricular band and ary-epiglottic fold measuring about one-and-a-half by one centimètre antero-posterior and lateral diameters; surface uniform and smooth; mucous-membrane over it slightly congested; general appearance that of a solid tumour.

After preliminary resolvent treatment, from 10 to 30 minims of a 30 per cent. lactic acid solution were injected deeply into the growth three or four times, at intervals of two or three days. As the needle entered it gave the sensation of passing through a narrow zone of soft tissue into a cavity. Puncture with a lancet gave escape to a little thick, semi-transparent fluid, which lessened the size of the tumour. Contents soon re-accumulated. It was soon seen that lactic acid caused no permanent change. Then from 15 to 20 minims of an 8 per cent. solution of carbolic acid in glycerine and water were injected every four or six days—eight times in all. At the end of this time the tumour had nearly disappeared. Three months later, no return, and throat felt perfectly well. Special points of interest in the case were (1) the deep-seated position of the cyst; (2) the impossibility of removing it without taking out a large part of one side of the larynx. Its walls were so thick that crushing, tearing, or cutting operations were out of the question.

II. *Mycosis of the Pharynx and Tonsil.* Twelve cases placed on record; four practically received no treatment; all the remainder cured by galvano-cautery.

In 58 per cent. patients had for many years suffered more or less from sore throat; in 66 per cent. soreness of throat present from four to eight weeks immediately preceding the discovery of the mycosis. Symptoms of dyspepsia present in 25 per cent.; in fully one-half the cases patient in good general health.

For treatment, galvano-cautery, heated to a bright red, was passed one-eighth of an inch into tissue beneath the growths; two or three patches burned at each sitting; *séances* repeated about every five days; disease sometimes disappears under natural causes.

Contribution to the Study of the Etiology of Rheumatic Affections of the Body due to Tonsillar Diseases. Paper forwarded by Dr. H. L. WAGNER (San Francisco).

The tonsil has been justly termed by Gerhardt a physiological wound—an inlet into the system guarded by leucocytes, which we have learned of late protect the body against the invasion of various micro-organisms. If, through inherited or acquired disposition, the energy of these leucocytes is diminished, or if the tonsil in a diseased state does not allow these corpuscles to migrate, then a soil may be given for infectious diseases, such as diphtheria, scarlatina, follicular tonsillitis, etc.

The sequences which sometimes follow these diseases are important to observe; paralysis of various parts of the body after diphtheria, and also articular rheumatic affections following follicular tonsillitis. The results gained by clinical and bacteriological investigations in follicular tonsillitis, followed by rheumatic affections, are what the writer wishes particularly to note.

The question which presents itself is, whether these rheumatic affections are produced by the germs (*staphylococcus albus et aureus*, Fränkel's pneumococcus, etc.) migrating from the tonsillar tissue into other portions of the body, causing rheumatism, or whether they remain in or about the tonsils, sending forth and distributing their ptomaines or poisonous products into the system.

The results of Dr. Wagner's investigations go to show that in follicular tonsillitis there is a migration of these germs, and not a distribution of their toxic products.

The joints most in use are the ones generally affected, *e.g.*, ary-cartilages of singers (five cases), knee-joints in shoe dealers, owing to the constant kneeling posture (two cases), wrist-joints of violinist (one case) and of bookkeepers (two cases). In the two foregoing cases where the knee joint was affected, bacterial analysis showed that the synovial fluid obtained from the joint by tapping contained the same micro-organisms as were found in the diseased tonsils. The germs were also intensified in the urine of nearly all the cases. The family and clinical history of all these patients showed no signs of rheumatism before the attack of this tonsillar disease.

At the executive sessions the following were elected Members of the Association :—

Active Fellows :

Dr. GEO. A. LELAND (Boston).

Dr. WM. HALLOCK PARKE (New York).

Corresponding Fellows :

Dr. EDGAR HOLDEN (Newark).

Dr. CHAS. E. SAJOUS (Paris).

Dr. R. NORRIS WOLFENDEN (London).

JOHN MACINTYRE, M.B. (Glasgow).

Dr. JOHN O. ROE (Rochester) was elected President for the ensuing year, and that city chosen as the place of the next meeting, the date to be selected by the Council.

PROCEEDINGS OF THE LARYNGOLOGICAL SOCIETY OF LONDON.

Ordinary Meeting, May 9th, 1894.

FELIX SEMON, M.D., F.R.C.P., *President*, in the Chair.E. CLIFFORD BEALE, M.B.,
SCANES SPICKER, M.D., } *Secretaries.*

Present—Sixteen Members and three Visitors.

The minutes of the previous meeting were read and confirmed.

Lupus of Nose and Larynx.—Clinical case exhibited by Dr. DUNDAS GRANT.

Edna H. came under observation on the 23rd of April complaining of "hoarseness" of two years' duration, which came on gradually and painlessly after a slight cold, with increasing obstruction in the left nostril of the same duration. Within the last four months the left half of the tip of the nose had become red and swollen, and a few spots had appeared on her left cheek near the nose, which were of a semi-translucent appearance, the smallest ones being of a red colour, the larger ones brownish yellow. They varied in size from that of a pin's head to a hempseed.

She had always been somewhat "delicate," but had not lost flesh, and had no cough except in winter. Her chest was normal. She was subject to chapped hands in winter, but not to chilblains. There was no family tendency to phthisis. The mouth and fauces were normal, with the exception of a cicatricial-looking patch at the junction of the left posterior pillar with the soft palate. The palate was thickened, and behind the uvula showed a transverse cicatricial band going from one posterior pillar to the other, and causing the uvula to point forwards. The back wall of the pharynx was occupied by a number of granular masses, chiefly in the lateral halves, the intermediate mucous membrane being dry and scar-like.

The epiglottis was symmetrically thickened and covered with pale, dry, tubercular granulations of considerable size. The ary-epiglottic folds were also thickened and irregular, and the ventricular bands, especially the right one, were so much swollen as nearly to conceal the vocal cords, the congested edges of which were alone visible. In the inter-arytenoid space was a mass of very pale moist granulations, which prevented the complete approximation of the cords.

In the nose the interior of the left vestibule was occupied by a soft granular mass covered with crusts, and a slight sticky discharge. This mass was found to grow from the walls of the vestibule and the anterior portion of the inferior turbinated body.

The lupous tissue in the nose had been scraped away with a sharp spoon under cocaine, and lactic acid had been applied with benefit. The same treatment had been adopted in the larynx. Internally she was taking liq. arsenicalis.

Probable Epithelioma Laryngis.—Clinical case exhibited by Dr. DUNDAS GRANT.

John C. R., aged sixty-seven, a retired schoolmaster, complained of hoarseness and want of voice, which came on three years ago after a cold. At first this was only troublesome after talking for some time, but for a year it had been constant, and had been worse during the last six months.

He had no cough, very slight discomfort in swallowing, with the singular feature that "eating hard or hot things seems to do him good." There was no pain except a slight occasional pricking, and no sign of reflex otalgia. He had no dyspnoea, but his family observed an audible blowing sound accompanying his breathing. He had no pain in his chest, where there was no sign of aneurism or other disease. The patient had been a schoolmaster and an inordinate voice user. The thyroid cartilage was not definitely expanded, and there was no enlargement of lymphatic glands. The whole length of the left vocal cord was occupied by a pale pink, slightly granular ulcer, the surface of which was somewhat convex in its middle part. This cord was fixed immovably near the middle line during inspiration and phonation alike. There was a small granulation below the anterior commissure. At the same time there was considerable mobility of the capitula, and the rest of the larynx was relatively normal.

The case was thought to be one of intrinsic carcinoma, but further opinions were desired in view of the absence of many of the usual symptoms of the disease. At the same time the appearance of the cord, the fixation of the arytenoid cartilage, and the age of the patient left little doubt as to the nature of the case, which seemed a favourable one for thyrotomy and hemi-laryngectomy.

The PRESIDENT agreed as to the diagnosis, and thought that in such a case it would be right to perform thyrotomy, in order to find out the extent of the disease, and to remove it by a major or minor operation, according to the result of the inspection.

Dr. GRANT pointed out that it was not possible to remove any part endo-laryngeally for examination, and agreed with the suggestion of the President.

Paralysis of the Thyro-arytenoid Muscles.—Dr. DUNDAS GRANT showed a case.

H. A. J., aged twenty-four, a post office clerk, had suffered from hoarseness of three years' duration, unaccompanied by cough, dysphagia, or dyspnoea.

He had no illness beyond the hoarseness, which had continued almost stationary up till the present, and was attributed to "catching cold." There were no symptoms or signs of phthisis, his family history was good, and there was no evidence of specific infection, nor any history of specific disease. The patient had been a player on wind instruments from boyhood. He formerly sang as soprano in a church choir, and later had used his voice as a high tenor. His chest was normal.

On inspection of the larynx during quiet breathing there was nothing abnormal to be seen except a slight congestion and duskiess of the vocal

cords. The respiratory movements of the cords were normal, but on phonation there was a very marked elliptical gap between the edges of the cords, except at their most anterior and at their arytenoid portions. The arytenoids met with striking promptness and completeness, while the middle portions of the cords seemed rather to recede under the expiratory blast. The ventricular bands approximated to an extreme degree, especially during forced efforts at vocalization. They were hypertrophied, and probably shared in the production of some of the tones.

The voice was, for speaking, continuously hoarse and low-pitched, but he could produce husky whispering tones ranging through nearly three octaves. This range of voice seemed to indicate activity of the crico-thyroid tensor muscles, which was confirmed by the obvious approximation of the cricoid and thyroid cartilages during the singing of musical intervals, as felt by means of the finger in front of the neck in the crico-thyroid space.

The laryngeal picture was that of paralysis of the opposing muscles, the thyro-arytenoids. He proposed to try the effect of intra-laryngeal electrization.

Dr. SPICER suggested that the case might be one of pachydermia laryngis. There seemed to be a definite swelling at the tip of one of the vocal processes, which on phonation was received into a corresponding depression on the other. He thought that the hoarseness and loss of voice were to be accounted for by the mechanical interference with the movements of the cords.

The PRESIDENT had not observed any such swelling, and agreed with Dr. Grant in regarding the case as paralytic. He would treat it by vocal rest and local astringents.

Dr. BEALE had noticed a very definite pink fleshy swelling at the point where the vocal processes came together on attempted phonation.

Dr. GRANT expressed his intention of bringing the case forward again at a future meeting.

Removal of Right Lobe of Thyroid for Graves' Disease.—Mr. R. LAKE showed a case.

The patient, a young woman, nineteen years of age, who always had prominent eyes, first developed symptoms of Graves' disease in August, 1893, especially exophthalmos, fainting, and palpitation; her evening temperature was 100° F., and her pulse-rate 100. She was uninfluenced by drugs. On February 11th, 1894, the right lobe, which was the larger, was removed. The temperature fell immediately after the operation, being normal in ten days' time; the pulse fell to 80 in ten days. The exophthalmos was almost gone except when she vomited, as she did frequently from some gastric trouble, and both palpitation and faintness had disappeared; she declared herself to be in very good health. The left lobe was certainly smaller, and had fallen away from the trachea more under the sterno-mastoid. Microscopically the goitre was partly composed of small cysts, and partly of acini, showing active cell formation as described by Greenhill.

Mr. LAKE, in reply to the President, said that he had removed the

portion of the gland with a view of checking the further progress of the disease, as success had thus been obtained by others. He regarded the morbid condition of the gland as being the primary cause of the train of nervous symptoms that were characteristic of the disease.

The PRESIDENT suggested the possibility of the subsequent occurrence of myxœdema.

Mr. LAKE, at the suggestion of Mr. Stewart, promised to keep the case in view, and to show it again later in the year.

Dr. SPICER commented on a case of Graves' disease, in which the use of tablets of thyroid extract had done much more harm than good.

Mr. LAKE, on the other hand, recorded a case in which the use of the tablets had had very good results.

Lupus of Pharynx and Larynx.—Clinical case exhibited by Dr. FELIX SEMON.

E. C., aged ten, complained of loss of voice for three months, and ulceration of gums and palate for two months. Family history good. No syphilis, tuberculosis, or rheumatism. The patient's voice began gradually to get weaker, and finally disappeared about three months ago. About two months ago, the gums were noticed to be ulcerated and to bleed frequently. The roof of the mouth got into the same condition, but did not bleed. Slight cough.

Patient was a fair, somewhat strumous-looking child. The gums were unequally ulcerated, and, in one or two places, bleeding. On the hard palate, and stretching back to the soft palate, was a roughened, worm-eaten patch, which consisted of a number of small ulcers, clumps of granulation tissue, and minute cicatrices. The same appearance was seen on the posterior palatal arches. On laryngoscopic examination the epiglottis was seen to be pale, worn away by ulceration, and presenting a rough nodular appearance: the ventricular bands were similarly affected, and their free borders were uneven; the right band completely covered the vocal cord: the left cord was visible, and about its centre presented an excavation. The arytenoids were swollen but not ulcerated; the mucous membrane was pale.

The patient had not had the slightest pain from either larynx or mouth, and there were no traces of affection of either skin or nares. There was slight flattening of chest on left side, and the percussion note was slightly impaired. On auscultation a few *râles* and rhonchi were heard over the left lung, especially at the apex: the right lung was normal. No other abnormalities.

Remarks.—The patient was shown because lupus of the pharynx and larynx was in itself rather rare, but more especially when unaccompanied by nasal or epidermal manifestations. No local treatment had as yet been adopted, because it was desired to show the patient without any local interference having taken place. The case would now be treated with scraping and subsequent application of lactic acid, and, if necessary, with the galvano-cautery, whilst internally cod-liver oil and arsenic would be given, and it was intended to show the result of the treatment at some future time.

Two Cases of Doubtful Malignant Disease of the Larynx treated by Thyrotomy and Radical Removal of the Growths.—Exhibited by Dr. FELIX SEMON.

The two following cases have this in common, that neither clinical observation nor histological examination had established the diagnosis of malignancy beyond doubt. Still in both cases it was deemed prudent to perform a radical operation.

Case 1: Mr. M. H., aged sixty-three. In this case an ill-defined papillary growth occupied the anterior half of the right vocal cord, the anterior commissure, and the front part of the left vocal cord. The disease had commenced several months previously, and the voice was quite aphonic. Repeated recurrences taking place after intra-laryngeal removal, thyrotomy was performed on July 12th, 1893, after consultation with Mr. Butlin. The front part of both vocal cords and the anterior angle of the thyroid cartilage, which appeared to be infiltrated, were removed, and the wound treated in the usual way with iodoform insufflation and packing with iodoform gauze. The patient recovered after a violent attack of bronchitis, and left the home six weeks after the operation. No recurrence had taken place, but the voice remained aphonic, owing to a large gap in the anterior part of the glottis, caused by removal of the front parts of both vocal cords. The fragments of growths originally removed were apparently papillomatous, but distinguished by very unusual thickness of epithelium, which gradually became more and more horny as subsequent pieces were removed and examined, there being at the same time an increasing quantity of small round cells visible in the specimens. It was on Mr. Shattock's urgent recommendation that the radical operation was decided upon. Even the examination of the pieces removed by radical operation left it still doubtful whether this was a case of commencing malignant disease, possibly in what was called in growths of the tongue the "precancerous stage."

Case 2: Colonel G. W. H., aged fifty-three, first seen on April 28th, 1893. Patient had been suffering from hoarseness for about a month past, and a small reddish growth was observed on the free margin and underneath the middle of the left vocal cord. It was semi-globular, about the size of a split pea, slightly granular and broad-based, so as to pass over very gradually into the congested left vocal cord, the movement of which was unimpaired. There was at first nothing to suggest malignancy, but in the course of the next twelve months the growth gradually spread, infiltrating more and more over the left vocal cord, with which it became intimately blended, and finally in April of this year an almost uniform thickening of the whole vocal cord had taken place, the movements of which also had become a little more sluggish. From the uniform nature of the infiltration it was quite impossible to remove a piece for microscopic examination. The whole development, however, taken in conjunction with the patient's age, rendered the nature of the growth very suspicious, and, after consultation with Mr. Butlin on April 26th, thyrotomy was performed. When the larynx was opened the left cord appeared as a cylindric form, slightly irregular and granulated body, which was much thickened, especially in its middle third, but not adherent to

parts in the neighbourhood. It was removed *in toto* and the basis scraped. In accordance with the suggestions recently made by Mr. Butlin (see "Proceedings," pages 27 and 28), Hahn's tube was removed immediately after the operation, no other tube was introduced, the patient was placed in an absolutely horizontal lateral position in bed, and the wound merely dusted with iodoform. He made an uninterrupted and rapid recovery. He was able to drink milk by the mouth three hours after the operation; the temperature never rose above 99°; he got up on the third day; the external wound now was closed and the voice was fairly strong, whilst the place of the left vocal cord was occupied by a freely granulating surface. The microscopic examination of the removed vocal cord was not yet completed. So far it appeared to be what Mr. Shattock calls a "continuous fibroma," *i.e.*, a new growth which insensibly passes over into the normal structure of the matrix, just as in *molluscum fibrosum*. There was also considerable thickening of epithelium, with very slight tendency to ingrowth of the same. A further report on the results of the microscopic examination would be given.

These cases illustrated the difficulty of deciding on the treatment when it was impossible to remove a portion of the growth for examination. The suggestions made by Mr. Butlin as to the slow use of Hahn's tube, its removal after the operation, the patient remaining in the horizontal lateral position with the wound quite open, had made exploratory thyrotomy so much simpler and easier, that it might safely be adopted as the operation of the future for dealing with such cases as those shown.

Sequel to a Case of Obscure Ulceration of Pharynx in a Case of Arrested Pulmonary and Laryngeal Tuberculosis.—Exhibited by Dr. FELIX SEMON.

The patient was shown to the Society at the February meeting of the present year (see "Proceedings," p. 74). After his return to Bournemouth, Dr. Davison scraped the pharyngeal ulcerations, and submitted the scrapings to a bacteriological expert, Mr. Turner, who on careful examination of three different specimens, did not discover any tubercle bacilli. The view expressed by Dr. Semon in his paper and in the discussion, *viz.*, that the pharyngeal condition was due to some other cause besides tubercle, had therefore received some further corroboration. The ulceration has now healed under further use of lactic acid, but, as the patient stated that he had once before had a similar ulceration, which gradually disappeared (see "Proceedings," p. 75), the relation of the *post hoc* and *propter hoc* was by no means fully settled.

The PRESIDENT commented on the fact that the patient had throughout been treated by creosote internally, and expressed the opinion that it was most useful in its action on such cases, especially when given in large doses.

Dr. DUNDAS GRIANT had also found it very useful.

Dr. CLIFFORD BEALE had watched its use for many years at the Chest Hospital, where it had been given in large and small doses, and in very concentrated vapour. It was exceedingly well borne by the delicate stomachs of tubercular persons, but as yet there was no evidence to show that it exercised any effect upon the cases of active or progressive tuberculosis. Chronic cases did very well under it.

Fixation of Left Vocal Cord.—Dr. SCANES SPICER showed a patient.

Mrs. C. D., a widow in service, had complained of hacking cough and hoarseness, lasting over seven years, with shortness of breath on exertion. Symptoms were all worse when she had a cold, and she had at times completely lost her voice.

History.—Syphilitic infection soon after marriage. Right basic phthisis, chest otherwise normal. Never had rheumatic fever. No source of pressure on nerve discoverable.

Laryngoscopic examination.—Left vocal cord immovable, fixed in cadaveric position; right vocal cord moved freely: slight congestion of larynx. Cause of immobility of cord assumed to be ankylosis of left crico-arytenoid articulation, in absence of other discoverable lesion.

Treatment being pursued—internally, iodide of potassium; locally, inunction of mercurial ointment.

Unilateral Laryngitis.—Mr. W. R. H. STEWART showed the following case.

Mrs. L. had suffered from her throat off and on since the winter of 1892-3. Voice was reduced to a whisper. No history of syphilis could be made out. Chest and sputum normal. When seen last November the right vocal cord was red and swollen, and the right arytenoid puffy, and there was some hypertrophic rhinitis. About a week afterwards there was a pyriform œdematous swelling, such as is seen in tubercular laryngitis. On inquiry it was found that the patient had used the inhalation ordered for her at boiling-point. This swelling soon went down and had completely disappeared: the cord, too, was less thick, but was still red. She was taking iodide of potassium gr. xxv three times a day, and the larynx had a daily application of zinc chloride (gr. xxx to 5j). The points of chief interest were the unilateral condition of the trouble, and also the fact that the boiling steam seemed to have acted on that one side of the larynx only, and to have caused the temporary arytenoid swelling.

Dr. DUNDAS GRANT thought that the disease had probably been syphilitic perichondritis, with ulceration of the vocal cord.

The PRESIDENT agreed with this diagnosis, and thought that the effect of the steam had been to irritate the diseased parts only.

Carcinoma Laryngis.—Mr. W. R. H. STEWART showed a case.

P. H., aged fifty, a gardener, had had a sore throat since Christmas, which came on after a cough. Two months ago the breathing became bad, and for the last month he could not lie down in bed. He had difficulty in taking solid food and in getting up phlegm. He had slight dull, aching pain; no history of syphilis. There was considerable swelling of the right side of the larynx, and some slight granular enlargement on both sides.

The PRESIDENT would limit operative treatment to the intrinsic cases. Luschka had shown that the lymphatics of the larynx do not anastomose with other groups of lymphatics, but open into the two small glands on either side of the thyroid. Hence the lymphatic

enlargement was always less in the purely intrinsic cases. Where other sets of glands also were involved the disease was generally extensive, and attempts at removal were generally followed by rapid recurrence.

Dr. BOND expressed his concurrence in this view.

Dr. SPICER observed that cases which appeared to be intrinsic were sometimes found to have extended more deeply than was supposed.

Congenital Abnormality of the Larynx.—Dr. J. B. BALL exhibited the following case.

F. E., aged twenty-five, clergyman, came under observation complaining of symptoms due to enlargement of the right tonsil, the crypts of which contained cheesy plugs, and to adenoid hypertrophy in the naso-pharynx. In the larynx the left arytenoid appeared larger than the right, the latter seeming to be abnormally small. The left arytenoid appeared to be tilted over towards the right side, and when the cords were in the position of rest the left capitula Santorini lay to the right of the middle line, and the left ventricular band was drawn inwards towards the middle line at its posterior part. When the cords were adducted the left arytenoid passed in front of the right, the two arytenoids lying one in front of the other instead of side by side during complete adduction.

There was no peculiarity of the voice except that it was not powerful, and was said to be easily fatigued.

An Intra-Laryngeal Syringe for Submucous Injections.

Dr. WATSON WILLIAMS (Bristol) exhibited a syringe for submucous injections in the treatment of laryngeal tuberculosis, which had been made to his design about three years ago by Messrs. Down Bros., and its employment had given very satisfactory results in properly selected cases.

It was simply a hypodermic syringe with a long curved needle, the curve of the needle being the same as that of Mackenzie's laryngeal forceps. Three-eighths of an inch from the point of the needle was a rounded shoulder, which served the double purpose of preventing the needle suddenly piercing the tissues too deeply, and of rendering the position of the needle more readily followed when in the larynx.

The use of the syringe involved no ulcerating surface, and was especially useful in cases of early localized tubercle. Solutions of pyoktanin, two per cent. aristol with menthol, $\frac{1}{1000}$ solution of iodide of mercury had been the most serviceable, especially the two per cent. solution of aristol in almond oil.

Sarcoma of Nose and Tonsils.—Cases shown by Dr. BOND.

1. A woman, aged seventy one, first seen in December, 1893, with both sides of nose and naso-pharynx filled with gelatinous vascular growth. The tonsils were not affected. There was much thickening of left posterior pillar. Large masses of enlarged glands extended on both sides from the angles of the jaw to the clavicles.

Under \mathfrak{M} iv doses of liq. Fowleri the growths in nose and naso-pharynx and the enlarged glands in neck disappeared. Simultaneously

the left tonsil became affected, and steadily grew larger, till at the present time the sloughing mass practically filled all the central part of the pharynx. Larger doses of liq. Fowleri could not be tolerated.

Epithelioma of Cervical Glands.

2. Patient came to Golden Square on account of a large, knobby fixed mass of glands the size of half a cricket ball on left side of neck. He had no discomfort in throat internally, though on examination the corresponding side of the pharynx and larynx was found affected. The patient had remained singularly comfortable under the combined use of large doses of iodide and morphia. Tracheotomy had been performed to relieve dyspnoea. The skin over the glands was on the point of giving way.

LARYNGOLOGICAL SOCIETY OF BERLIN.

Meeting, February 2nd, 1894.

Dr. MORITZ SCHMIDT presented the Society with a copy of his new work "Diseases of the Upper Respiratory Passages."

Dr. SCHEIDEWALDT recommended inunctions of pure creolin in the treatment of pulmonary and laryngeal phthisis. Neither cutaneous nor renal irritation followed, although the creolin was readily traceable in the urine. (2) He showed a case of paralysis of the left recurrent, which he considered due to aneurism.

Dr. ROSENBERG showed a case of *Tussis Nervosa*, where rhythmic contractions of the velum were visible.

Dr. SCHAEZT showed a tooth extracted from the left nasal passage by means of an ear-scoop. The teeth were normal, with the exception of one of the right molars.

Dr. HEINMANN showed five *Vascular Polypi*, which had been found growing from the septum naris, in patients from two to fifty years old. In two cases the insertion of the growth was upon the lower and anterior part of the septum; in the other three, in the anterior and upper part of the septum. The symptoms were profuse bleeding, pain, and nasal obstruction. The growths were removed either by the snare, the forceps, or the galvano-cautery. Some hæmorrhage was observed. There was no recurrence in three of the cases, in the fourth a recurrence was noticed in four months; the fifth case has only been under observation for a short time. Microscopically the growths were found to consist of delicate fibrous tissue, rich in small cells. There were numerous blood vessels, and small masses of lymphoid tissue, but neither glands nor nerves. In one case hæmorrhage had occurred into the structure of the growth.

Dr. ALEXANDER showed three cases of *Septal Polypi*, also of a vascular type. In the first case the growth sprang from Kiesselbach's space, and was found to consist of numerous small cells, lying in a delicate matrix of connective tissue. Hæmorrhage had occurred into the substance of

the growth. In the second case the patient, a girl aged sixteen, had the growth attached to the anterior part of the left septum naris. Microscopically, the growth was found to consist of delicate connective tissue, numerous blood vessels, but no glands. In the third case the point of origin was from Kiesselbach's space. Microscopically, glandular elements were found.

Drs. SCHEINMANN and KATZENSTEIN asked if hæmorrhage had been profuse at the time of the operation.

Dr. SCHEIER remarked that in one case he had seen severe bleeding.

Dr. HEINMANN had also seen severe bleeding in one case.

Dr. SCHEINMANN read a paper upon the *Occurrence of Gummata in the Lower Turbinate Body*. He remarked that so long as no ulceration was present the diagnosis was extremely difficult, especially when there was no other gummatus process about the nasal passages. The diagnosis may at times only be possible after the administration of antisyphilitic remedies.

In the first case there was severe dysphagia and obstruction of the left nasal passage. A large gumma was found upon the posterior pharyngeal wall. The posterior end of the left inferior turbinal was swollen and touching the septum. The surface was smooth and of a red colour. Its anterior extremity was normal. Rapid improvement followed the administration of iodide of potassium.

In the second case an ulcer was found upon the posterior pharyngeal wall, upon the tonsil, over the right arytenoid cartilage, and upon the false vocal cord. A hard swelling existed upon the anterior end of the left inferior turbinal of a red colour. Cure under iodide of potassium.

In the third case the patient, a medical man, had been under treatment for some months on account of increasing obstruction in the nostril. The posterior end of the right inferior turbinal was swollen and pressed up against the septum. No ulceration was present. A gumma was present upon the posterior pharyngeal wall. Cure under iodide of potassium. Gummata are to be distinguished from hyperplastic formations by their solid consistence, and from malignant growths by their smooth surface.

LARYNGOLOGICAL SOCIETY OF BERLIN.

Meeting, February 23rd, 1894.

Dr. SCHEINMANN reported that in the case of tussis nervosa recently recorded by him, the adductors of the left half of the larynx had become implicated. He also related the notes of a case of nasal sarcoma in a girl, aged four years. The left submaxillary glands were enlarged. The growth was hard, of a greyish-white appearance, and with an uneven surface, and completely blocked up the left nasal passage. A microscopic examination established the diagnosis of sarcoma.

Dr. HERZFELD showed three cases of *Cleft Palate*, two congenital, the third acquired.

Dr. HATAN showed preparations of a flat-celled *Malignant (Carcinomatous) Growth* of the side of the nose which had largely destroyed the turbinate bodies.

Dr. EDMUND MEYER related that of twenty-eight persons who had assembled together at a restaurant upon February 6th, three fell ill upon the 9th with diphtheria, and five with lacunar angina. Bacteriological examination of the secretions of one of the patients, a young lady suffering from typical lacunar angina, showed pure cultivations of the virulent diphtheria bacillus. Three days afterwards this young lady's brother was taken ill with lacunar angina. Examination of the tonsillar secretion demonstrated the presence of Loeffler's bacillus and staphylococci. These observations show that (1) the same infectious process may produce in one person diphtheria and in another lacunar angina, (2) that in all the above cases the period of incubation was three days. The origin of the disease was traced to a child of the restaurant proprietor who had succumbed to diphtheria.

Dr. SCHEIER reported two cases of *Vascular Polypi* growing from the nasal septum. In one case the patient, a young man aged twenty-three, suffered from attacks of violent epistaxis. A tumour of mushroom shape was found springing from Kiesselbach's space. It was removed by means of a cold snare and hæmorrhage arrested by tamponing. Microscopically it was found to be a lymphangioma. There was no recurrence.

In the second case the patient, aged fifty-one, suffered from severe bleeding from the right nostril. A tumour with smooth surface, of solid consistence, and with a short thick pedicle, was found attached to the septum. Microscopically it was found to be a fibroma.

Dr. HERZFELD reported four cases of *Suppuration of the Sphenoidal Sinuses*, of which two were bilateral. In one of these bilateral cases there was also suppuration of the maxillary antra; in the other there was also caries of the ethmoidal cells. In all four cases the anterior wall of the sphenoidal sinus was carious. In three cases a distinct swelling appeared close to the septum, which he considered important as a diagnostic point. He considered probing of the normal aperture rarely possible. In three of the cases there were severe headaches. In opening the sinus he recommended a small, sharp spoon.

He referred to a series of anatomical abnormalities to show that the opening of the sinus may be very difficult or even impossible.

W. Milligan.

ABSTRACTS.

DIPHTHERIA, &c.

Bokay (Budapest). — *Occlusion of O'Dwyer's Tubes by pushing down the Pseudo-Membrane, and the Importance of this Complication.* "Pester Med. Chir. Presse," 1894, No. 12.

THE author concludes: Pushing down of pseudo-membrane by intubation is rarely observed, and only in rare cases ends fatally. The asphyxia

caused by it can be relieved by extubation, and the loosened membrane will be expectorated. If no expectoration follows extubation, artificial respiration must be made, and if this has no effect, tracheotomy should be performed. The later obstruction of the tube by pseudo-membrane rarely occurs. In such cases the obstructed tube is usually coughed out. A continual observation of the patients will prevent a fatal issue of this complication. The thread should be fixed to the child's neck, so that the extubation could be performed by the nurse if necessary.

In spite of the possibility of this event, O'Dwyer's method must be viewed as a great progress in treatment. *Michael.*

O'Dwyer, J.—*The Present Status of Intubation in the Treatment of Croup.* "New York Med. Journ.," March 10, 1894.

A VERY interesting review of the present situation of intubation in laryngeal diphtheria, the mortality of which without treatment is put at ninety per cent., which can be reduced to from twenty-seven per cent. to forty-four per cent. of recoveries. The necessity for collecting the statistics from different practised surgeons is dwelt upon. *R. Lake.*

Koplik, H.—*Acute Lacunar Diphtheria of the Tonsils.* "New York Med. Journ.," March 10, 1894.

THE author proves conclusively that numerous cases supposed to be simple acute follicular tonsillitis are in reality due to Loeffler's bacillus cultures, which prove fatal to guinea-pigs. The cases are divided into three groups of varying severity, and yet a fourth class is mentioned in which the pseudo-bacillus replaces the true or virulent one, and the bacteriological question is fully and fairly discussed. *R. Lake.*

Field, F. H.—*A Case of Diphtheria preceded by Unusual Symptoms.* "New York Med. Journ.," March 17, 1894.

THIS was a case of broncho-pneumonia in which diphtheria developed on the seventh day, the child recovering. *R. Lake.*

Chappell, W. F.—*Vexed Questions in the Bacteriology of Diphtheria.*

FORTY-SEVEN throats were examined. Cultures from those with enlarged or diseased tonsils were examined, and in four the bacillus was found, but in no case did inoculation prove it virulent. *R. Lake.*

Bergmann (Worms).—*Contribution to Prophylaxis of Diphtheria.* "Das Kinderaerzt," 1894, Heft 4. *New Proposition for Prophylaxis of Diphtheria.* "Allg. Med. Centralzeitung," 1894, No. 1.

WITH Szana the author believes that, by gargling, only the palate and the root of the tongue are touched by the fluid. He agrees with the publications of Taube, who says that the infection is produced by pressing the infected saliva into the lacunæ of the tonsils during deglutition. Therefore the disinfectants should be applied in the same manner. Such medicaments should not irritate the mucous membrane. To meet this he has had made pastilles of gutta-percha impregnated with two milligrammes of thymol (a disinfectant up to a proportion of 1 : 80,000), and two centigrammes of benzoate of soda, which as Graham Brown has

shown increases the immunity of the body against diphtheria. This pastille should be kept in the mouth from fifteen to twenty minutes. The author believes that the use of the pastilles will prevent diphtheria. *Michael.*

Feer (Basel).—*Etiology and Clinical Contributions to Diphtheria.* Association of Clinics and Clinical Institutes of Switzerland.

1. *Bacteriological Researches on Diphtheria.*

Of thirty-eight cases of bacillary diphtheria, fifteen died. In twenty cases the air passages were affected; of those, tracheotomy was performed in sixteen, and two intubated. Five cases had no affection of the pharynx. In these cases bacilli were found in the tonsils. In the other cases bacilli were found in the tonsils ten days after the disappearance of the membrane. They were also found in the tracheal membrane. In six cases resembling true diphtheria bacilli were not found. Such cases must be viewed as pseudo or coccus diphtheria. Of eleven lacunar diphtherias, virulent bacilli were found twice; in the others staphylococci and streptococci. In two cases of catarrhal angina observed in a house where there was at the same time true diphtheria, in spite of normal pharyngeal mucous membrane, bacilli were found.

2. *The Spreading of Diphtheria.* Epidemiological Study founded on the obligatory Report of Infectious Diseases in the City of Basel from 1875 to 1891.

Statistical report on the epidemics in Basel. Must be seen in the original.

3. *Tracheotomies in Diphtheria at the Basler Children's Hospital during the last Twenty-one Years, and their Complications; Consequences of Tracheotomy in Later Life.*

From 1868 to 1872 twenty-six cases of diphtheria were observed; of those, eight had tracheotomy, and all died. From 1872 to 1893 five hundred and eighty cases were admitted; of those, one hundred and fifty-seven were pharyngeal and nasal diphtheria without affection of the deeper air passages; of these, seventeen died, or ten per cent. In four hundred and twenty-three cases the larynx and bronchi were affected; of these, two hundred and one died, or fifty-four per cent. In three hundred and thirty-three cases tracheotomy was performed, with one hundred and thirty-six (or forty per cent.) cures. Laryngeal complications are more often observed in winter than in summer. Tuberculosis, measles and affections of the respiratory organs were noticed to predispose to diphtheria. In a great number brothers and sisters were affected, but in no case could direct infection be proved. Membrane was seen on the tongue in one, on the lips in other cases, and diphtheria of the female genitals was observed. Ascending diphtheria arose in four cases. Relapsing chronic diphtheria necessitating a second tracheotomy was observed in three cases. In a fourth case tracheotomy was performed for simple croup, and again, thirty-two days later, for diphtheria. Tracheotomy in cases without any affection of the tonsils gave twenty per cent. more cures than that in which membranes were present on the pharynx and tonsils. The cause is that without pharyngeal affection cases show less disposition to become septic. Croup was most frequent

in the second year of life. The probability of success increases with age. One hundred and eighty-two boys and one hundred and fifty-one girls were operated on, and the operation was performed when there was marked stenosis and cyanosis, and it seemed impossible to wait longer. One hundred and seventy-nine crico-tracheotomies, one hundred and twenty-two superior and twenty-four inferior tracheotomies, were performed. Narcosis was mainly induced. The prognosis was better if respiration became free after operation without membrane being coughed up. Most deaths occurred in the first two days after operation. At the *post-mortem* examinations, in fifty-eight cases bronchitis crouposa was found; in sixty-eight broncho-pneumonia; in seventeen croupous pneumonia; in four gangrene of the lungs. Usually the tube was removed between the fifth and the tenth day. In five cases decanulization was not possible on account of cicatricial stenoses. Disturbance of the voice, paresis of the vocal cords, was observed in some cases, as very late sequelæ, especially after crico-tracheotomy. Therefore tracheotomy without cutting the cricoid cartilage is to be preferred.

Michael.

Langfeldt (Ingelfingen). — *On Diphtheria*. "Aertztlicher Praktiker," 1893, No. 32.

DESCRIPTION of an epidemic observed in Ingelfingen.

Michael.

Kauffmann (Hanover). — *Researches on Angina and Diphtheria*. Inaugural Dissertation. Berlin, 1893.

BACTERIOLOGICAL examination of forty cases of angina and diphtheria. In all cases of diphtheria, Loeffler's bacillus was found; in the cases of angina, streptococci and staphylococci.

Michael.

Brown, D. — *Some Practical Points in the Treatment of Diphtheria by Calomel Fumigations*. "Med. News," May 12, 1894.

THE author's statistics of recoveries in laryngeal diphtheria have increased from 35.4 before the use of the above treatment to 47.6 since its adoption. He goes fully into the details of the process, and states that the real fact to consider is not the absolute quantity of calomel volatilized, but the quantity inhaled, as judged by the density of the fumes and the size of the tent.

R. Lake.

Brasch (Kissingen). — *Treatment of Diphtheria*. "Münchener Med. Woch.," 1894, No. 18.

TREATMENT with cyanide of mercury advised.

Michael.

Jacobi, A. — *Local Treatment in Diphtheria*. "Therapeutic Gazette," March 15, 1894.

NOTHING new.

R. Lake.

Zappert (Wien). — *On the Curative Effect of Antidiphtherin (Klebs)*. "Wiener Med. Woch.," 1894, Nos. 13 to 17.

OF fifteen cases of diphtheria treated by antidiphtherin, eleven were cured and four died. In all cases the disease was grave. Often new pseudo-membranes appeared after brushing with the medicament.

Tracheotomy was necessary in two cases. The author concludes that antidiphtherin is without any effect, and cannot prevent complications. The statistics of other cases of the same epidemic treated by other methods was the same as those of the cases treated with the new medicament.

Michael.

Schubert (Berlin).—*Experiences of the Behring-Ehrlich Diphtheritic Protective Serum.* "Deutsche Med. Woch.," 1894, No. 22.

THE author has treated thirty-four children. Of those, twenty had tracheotomy performed; twenty-eight were cured. Of the tracheotomy cases, six died; of those, two died of pneumonia, two of croup, two of myocarditis and nephritis. The author gives a table of his cases, and concludes that, despite the small number of cases, he believes that the Heilserum is an efficient medicament both in the local affections and especially in the case of debility of the heart.

Michael.

Noswinkel (Berlin). — *Results of the Heilserum treatment in Diphtheria.* "Deutsche Med. Woch.," 1894, No. 22.

IN the Urban Hospital sixty children have been treated with the diphtheritic protective serum; of these, thirty were serious cases. Of these thirty, fifteen (equal fifty per cent.) were cured; of fifteen cases of moderate severity, thirteen (equal eighty-one per cent.) were cured; of fourteen slight cases, fourteen (equal one hundred per cent.) were cured. Nine (equal forty-five per cent.) of the tracheotomy cases survived. The recoveries after tracheotomy in the last year were twenty-five per cent., so that twenty per cent. more were cured by this method. Of ninety-eight children treated in this year without serum, fifty-four per cent. were cured. The best results were obtained when the treatment was commenced on the first day of the disease—i.e., fourteen cases with nine cures (equal sixty-four per cent.). In nearly all cases the children were much improved the day after the first injection. The author gives a table of his cases, and concludes that the treatment with serum has without doubt a favourable influence on diphtheria.

Michael.

Klebs (Karlsruhe).—*Critical Review of Antitoxin Treatment.* "Deutsche Med. Woch.," 1894, No. 18.

IN No. 6 of the "Deutsche Med. Woch.," Dr. Vulpus has reported his experience of antitoxin treatment, and described negative results. (See report in this Journal.) Klebs says that these unfavourable results were brought about by the use of a treatment differing from his own, repeats his good results, and says that one cubic centimetre of double concentration of antidiphtherin is sufficient to protect twenty cubic centimetres agar glycerine and glycerine-pepton-bouillon against cultures of diphtheria bacilli.

Michael.

Vulpus.—*Remarks on the Article of Prof. Klebs in No. 18 of the "Deutsche Med. Woch."* "Deutsche Med. Woch.," 1894, No. 20.

VULPIUS repeats that he has applied antidiphtherin after Prof. Klebs' method without any effect on the progress of the disease.

Michael.

Buchner (München).—*Is Antitoxinum a Poison Destroyer?* "Deutsche Med. Woch.," 1894, No. 11.

BUCHNER says that the antitoxin has only a protective effect on the not yet infected body, but cannot destroy the poison which has been introduced before its application. *Michael.*

Behring (Berlin).—*Answer to Foregoing.* "Deutsche Med. Woch.," 1894, No. 11.

BEHRING answers that his antitoxin can also destroy the poison which has been introduced into the body before its use. *Michael.*

Behring and Boer (Berlin).—*On the Necessary Quantity of Diphtheritic Antitoxin Solutions.* "Deutsche Med. Woch.," 1894, No. 21.

POLEMICAL experimental paper concerning the preparations of Schering recommended by Ahronson. *Michael.*

Unruh.—*Treatment of Whooping Cough.* "Jahrb. für Kinderheilk.," Band 36, Nos. 1 and 2.

MICHAEL'S nasal insufflation is recommended, combined with the internal use of antypyrim. *Michael.*

Delephine, S., and Radcliffe, F.—*The Spread of Tuberculosis through the Lymphatics.* "Med. Chronicle," May, 1894.

THE authors, by a series of exhaustive experiments, prove well that tubercle bacilli can and do travel down lymph channels against the current of lymph, and that at all events in the guinea-pig the various regions of the body differ in the likelihood and rapidity of this occurrence. *R. Lake.*

MOUTH, PHARYNX, &C.

Paschkis (Wien).—*Antiseptic Treatment of the Mouth, and on the Antiseptic Properties of Odol.* "Therapeutische Blätter," 1894, No. 4.

RECOMMENDATION of the medicament. *Michael.*

Szana (Temesvar).—*New Method for Disinfection of the Mouth and Pharynx.* "Pester Med. und Chir. Woch.," 1894, No. 6.

By experiments with coloured fluids the author found that in gargling only the soft palate and the root of the tongue are touched by the fluid. Therefore he believes that gargling is ineffectual. By the application of bonbons the whole mucous membrane of the mouth and pharynx is touched by the mass. He recommends disinfecting pastilles of saccharinum and resina quaiici. He proved the disinfecting power of this application by bacteriological research of his saliva. Before the application he found culturable micro-organisms in it; after the application they had disappeared. *Michael.*

Leuhossek.—*The Histology of the Ends of the Nerve of Taste.* "Anatomische Anzeiger," 1893, No. 4.

THE researches of the author prove that the nerves of the tastebuds end free, and form a network around the tastebuds. *Michael.*

Livon, Ch.—*On the Innervation of the Soft Palate.* "Marseille Medical," June 1, 1894.

THE excitation of the roots of the pneumogastric nerve determines a contraction of the muscles of the velum of the corresponding side; the velum is lowered, and the pillars are approximated. Upon excitation of bulbar roots of the spinal accessory, the soft palate is raised on the corresponding side, and the mucous membrane is creased transversely.

A. Cartaz.

Hamilton, H. D.—*Symmetrical Congenital Defects in the Anterior Pillars of the Soft Palate.* Montreal Medico-Chirurgical Society, March 9, 1894.

Two elliptical fissures, half an inch long and three-sixteenths wide, were observed in this patient, who was at the time suffering from laryngeal and pulmonary phthisis. Dr. Hamilton considered the case one of separate investment of the fibres of the palato-glossus muscle. There was an absence of any cicatricial tissue in the neighbourhood.

George W. Major.

Lederman, M.D.—*Alarming Secondary Hemorrhage following Removal of Hypertrophied Tonsils with the Galeano-Cautery Snare.* "Annals Ophthal. and Otol.," April, 1894.

THE hæmorrhage occurred five days after the operation, and was very alarming.

R. Lake.

Birkett, H. S.—*Small Pedunculated Polypus of the Left Tonsil.* "Transactions of the Montreal Medico-Chirurgical Society," Dec. 15, 1893.

THE tumour was removed from a child four months old. It was about the size of a pea and consisted microscopically of a superficial layer of flattened epithelium, with sub-epithelial connective tissue, beneath which were a series of glandular alveoli, separated by fibrous septa. The gland tissue was that typical of mucous glands, and showed no adenomatous overgrowth. The growth was benign.

George W. Major.

Brickley, E. W.—*Lupus Vulgaris.* "Journ. of Ophthal., Otol., and Laryngol.," April, 1894.

REPORT of a case of pharyngeal lupus treated by scraping and lactic acid.

R. Lake.

Hacker.—*Case of Œsophageal Stricture.* Gesellschaft der Aerzte in Wien. Meeting, May 18, 1894.

THE author showed a patient with an Œsophageal stricture, caused by injury, and improved by dilatation with bougies. He also showed a large piece of bone revealed by the Œsophagoscope and extracted.

Michael.

Mayo, W. J.—*Stricture of the Œsophagus; Division and Dilatation after Gastrostomy and Œsophagotomy.* "New York Med. Journ.," April 7, 1894.

THE patient, aged three years, had an impermeable stricture, due to swallowing some lye one year before. Gastrostomy after Fenger's method was performed. One month later, Œsophagotomy. After considerable difficulty two strings were passed through the stricture—one to divide it

according to Abbe's method, and one to steady it. Shots were afterwards clamped on and drawn through the sinuous tract. Five weeks later, bougies were used, and the patient eventually recovered and took food by the mouth.

R. Lake.

Pater, A. J.—*Two Cases of Rupture of the Œsophagus.* "Med. News," May 12, 1894.

IN the first the œsophagus ruptured into the left pleura during, or rather at the commencement of the act of vomiting. There was evidence of œsophago-malacia, to which the rupture was attributed. The second was caused by erosion of the wall by an aortic aneurism.

R. Lake.

NOSE AND NASO-PHARYNX.

Wright, J.—*Asepsis and Antisepsis in the Nose and Throat.* "Annals of Ophthal. and Otol.," April, 1894.

THE statements of Lermoyez and Wurtz are combated by bacteriological investigations by the author, who has found, as have Besser and Delletti, numerous pathogenic organisms in apparently healthy noses. The paper concludes with advocating the efficient use of antiseptics before and after all operations here as elsewhere.

R. Lake.

Jones, W. S.—*Unusual Morbid Growths of the Nose and Mouth.* "Therapeutic Gazette," March 15, 1894.

THE first, a carcinoma of the inferior and middle turbinated bones, was removed by the curette. The second was a similar case, and was treated in like manner. The third was an ossifying fibroma of the alveolar process, which was removed with the galvano-cautery snare. There was no recurrence in any of the cases.

R. Lake.

Levy, R.—*Inoperable Sarcoma of the Nose.* "New York Med. Journ.," March 17, 1894.

A DETAILED report of a large-celled sarcoma of the superior maxilla.

R. Lake.

Gibb, J. S.—*The Importance of Early Recognition and Treatment of Obstructive Diseases of the Upper Respiratory Tract.* "American Lancet," May, 1894.

THE author urges careful attention to the nose and naso-pharynx in all cases, even where there is no obvious connection between the disease and the parts mentioned.

R. Lake.

Reuter (Ems).—*Disturbances of the Olfactory Sense.* "Wiener Allg. Med. Zeit.," 1894, Nos. 20, 21 and 22.

REVIEW of the literature.

Michael.

Lewis, F. D.—*Nasal Reflexes.* "Journ. of Ophthal., Otol., and Laryngol.," April, 1894.

TWO cases of nasal reflexes cured by operation. The second was affected with asthma, which was cured by removal of hypertrophic tissue from the middle turbinated body.

R. Lake.

Ripault.—*Etiology and Treatment of Epistaxis.* "Gaz. Med. de Paris," June 9, 1894.

CRITICAL review.

A. Cartaz.

Roe, J. O.—*The Treatment of Deviations of the Nasal Septum.* "New York Med. Journ.," April 7, 1894.

A CLEAR and concise *résumé* of the various deformities, and the means, operative and non-operative, for remedying them.

R. Lake.

Spilsbury, E. A. (Toronto).—*Deflection of the Nasal Septum and its Surgical Treatment.* "Canada Lancet," Sept., 1893.

THE author discusses at some length the various deflections of the nasal septum and the causes which produce them, favouring traumatism as the more frequent. After considering the several procedures for restoring normal respiration and drainage, he advocates an operation which has given satisfactory results in simple cartilaginous deflection. He directs an incision through the projection following its long axis. The end of the finger is then to be introduced into the nostril, and the septum pushed beyond the centre, and there maintained by packing the previously obstructed nostril with carbolyzed oakum.

George W. Major.

Kyle, D. B.—*Etiology, Pathology and Treatment of Ozena.* "Med. News," May 5, 1894.

THE author upholds the theory that atrophic rhinitis arises primarily as a hypertrophied rhinitis, and, after reviewing the literature on the subject, states that he almost always demonstrated the presence of anæmia by an examination of the blood, which rapidly improved under treatment. His treatment is (1) cleansing the membrane with hydrogen peroxide; (2) removing this with an antiseptic alkaline spray; (3) thoroughly drying the membrane; (4) applying an oily solution of oil of mustard up to six or eight drops to the ounce.

R. Lake.

Fischer (Emmerich).—*Ozena of the Nose and Larynx.* Dissertation, Greifswald, 1893.

REPORT of two cases from Strubing's clinic.

Michael.

Grünwald (München).—*Ozena.* "Münchener Med. Woch.," 1894, No. 15.

POLEMICAL article concerning Hopman's views.

Michael.

Scheppepegrell, W.—*Congenital Occlusion of the Posterior Nares.* "Annals of Ophthal. and Otol.," April, 1894.

REPORT of cases, and a detailed description of the ordinary operation.

R. Lake.

Griffin, E. H.—*The Occlusion of the Post-Nasal Space by Syphilitic Adhesion.* "New York Med. Journ.," March 24, 1894.

OPERATION is advocated, and a double-edged knife, curved on the flat, is used; the edges of the wound are cauterized, and a pair of dilators used for some time afterwards.

R. Lake.

Lathuraz. — *Naso-Pharyngeal Polypus*. "Lyon Medical," June 10, 1894.

CASE of naso-pharyngeal polypus removed by evulsion with Loewenberg's forceps. Cure in eight days. *A. Cartaz.*

Knight, C. H. — *A Case of Torticollis following Removal of Adenoids, etc.* "Annals of Ophthal. and Otol.," April, 1894.

THE torticollis came on twenty-four hours after the operation, and lasted ten days; three suggestions as to its cause are given, the last being preferred. (1) Wound of the rectus muscle. (2) Contusion of the muscle. (3) Nerve lesion, causing a reflex torticollis. *R. Lake.*

Grönbech (Copenhagen). — *Deformity of the Palate in Adenoid Vegetations of the Naso-Pharynx*. "Hospitals-Tidende," 1893, No. 10.

THE author has examined the shape of the hard palate in seventy-seven cases of adenoid vegetation of the naso-pharynx, and found it normal in only ten cases. In sixty-seven cases (*i.e.*, in eighty-seven per cent.) there was some abnormality of one kind or another, and in ten of these the palate exhibited signs of rickety deformity. In the remaining fifty-five cases the author found an abnormal increase of the palatine arch, a section through it forming either a polygon or a Gothic arch, often also a decrease of the distance between the right and left alveolar process, and an irregularity in the position of the teeth, especially the front teeth. In all these cases the inferior maxilla presented a normal appearance, a circumstance on which the author lays great stress, as being a proof that the abnormality of the upper jaw in the fifty-five cases was not of rickety origin, but caused by deficient development of the nasal cavity, the normal pressure of the septum decreasing in intensity. The oral breathing, according to the author, also influences the development of the deformity, the air of expiration pressing against the palate of the infant, and thus augmenting the result. *Holger Mygind.*

Hajek (Wien). — *The Diseases of the Ethmoidal Bone*. "Internat. Klin. Rundschau," 1894, No. 19.

FROM the anatomical researches of Zuckerkandl it is certain that caries of the ethmoidal bone is a rare event. It is therefore impossible that in life it can be present as often as is said by some authors, especially by Grünwald. If we examine with a probe we always touch bone if we enter in the space of the ethmoidal bone; therefore that symptom cannot be viewed as characteristic of caries. Only when there is pus in the middle meatus, and suppuration of all the accessory sinuses can be excluded, may we believe that there is disease of the ethmoidal bone. *Michael.*

LARYNX.

Tansk. — *The Relation of Thoracic Aneurisms to the Recurrents*. "Pester Med. Chir. Presse," 1893, No. 27.

OF forty-one cases of aneurisms seen in the clinic at Pest, hoarseness was observed in twenty-two, and paralysis of the recurrents in nineteen. Most

of these nineteen cases were aneurisms of the arch. Compression and degeneration of the nerve cause this paralysis. Usually the paralysis is on the left side. Bilateral paralysis is very rare in cases of aneurism.

Michael.

Finley, F. G.—*Enlarged Glands pressing upon the Trachea in a Case of Hodgkin's Disease.* "Transactions of the Montreal Medico-Chirurgical Society," Oct. 20, 1893.

THE disease had lasted seven years. The earliest symptom was the occurrence of urgent attacks of dyspnoea. After an interval of two years these attacks recurred, and enlargement of the cervical glands was observed. The removal of some glands from behind the sternum gave relief. In 1891 there was stridor and dyspnoea, with enlargement of the cervical and axillary lymph glands, the size of which varied considerably from time to time. In December, 1892, the inguinal glands enlarged.

Post-mortem, the trachea was found to be surrounded by a cluster of enlarged glands as big as a foetal head. The lumen of the trachea was compressed to a mere chink, and the mucosa was eroded.

George W. Major.

Freudenthal, W.—*Is Laryngitis Sicca and Stoerk's Bleunorrhœa one and the same Disease?* "Annals of Ophthal. and Otol.," April, 1894.

THERE are two cases given at length—one of undoubted laryngitis sicca, which progressed until it was to all intents a case of blennorrhœa, and one which presented all the characteristics of this disease at the commencement. With this as the foundation, he follows up the argument, giving especially the site of election for the crusts as the anterior commissure, the part of all others least likely to receive crusts from the naso-pharynx, and the cases reported in which there was no nasal affection. R. Lake.

Siebenmann.—*Foreign Bodies in the Air-Passages.* Medicinische Gesellschaft der Stadt Basel, Meeting, March 1, 1894.

1. In the first case a piece of walnut shell lodged in the right bronchus of a child six years old, and was expectorated by coughing thirty-five days after it was inspired. Tracheotomy was not performed because there was no fever or dangerous symptoms.

2. A piece of money was swallowed by a child aged one year. The child was in pain, could not sleep, and had strong nasal stertor. The foreign body was found in the post-nasal fossa pressed against the soft palate.

Michael.

Simonin (Paris).—*Ulcerations in Catarrhal Acute Laryngitis.* Thèse de Paris, 1894.

THE author thinks that acute laryngitis may be accompanied by ulcerations; he has seen that complication twice in sixteen cases. These ulcerations are generally superficial, and symmetrically disposed on the vocal apophysis, the inter-arytenoid fold, and the anterior commissure. They are caused by the continual pressures on the inflamed mucous membrane; the voice and cough cause immoderate movements of the cords and surrounding tissues. Simonin admits Heryng's theory

as to these ulcerative manifestations. He treats these ulcerations by local applications of carbolized glycerine, one in thirty. *A. Cartaz.*

Neumann (Mülheim an der Ruhr).—*Blunt Operative Method of Tracheotomy.* "Deutsche Med. Zeitung," 1894, No. 28.

THE author recommends after the incision of the skin to cut as little as possible, to work with the finger or blunt instruments. It is the method used largely by all tracheotomists. The proposal of the author contains nothing new. *Michael.*

Cnopf (Nürnberg).—*Indications for Tracheotomy.* "Münchener Med. Woch.," 1894, No. 19.

IT is sometimes not easy to give an exact indication at what time tracheotomy should be performed in diphtheritic children. The author has discovered a new indication, in the position of the diaphragm. When there is stenosis the type of the respiration changes. The upper walls of the thorax and the accessory inspiratory muscles work vigorously; the deeper parts of the thorax do not participate in the respiration; therefore the diaphragm does not stand on the same place as usual. In children its normal plane is that of the eleventh rib. During stenosis we find it at the ninth or tenth rib. This position is an indication for tracheotomy. A short time after operation the diaphragm is found at its normal place. *Michael.*

Kraus, Eugen (Paris).—*On Artificial Voice after Extirpation of the Larynx; Reconstruction of the Speech after Excision of Free Tracheal Rings of the Cricoid Cartilage and the Malignant degenerated Thyroid Gland; A New Artificial Larynx.* "Allgemeine Wiener Med. Zeitung," 1894, Nos. 19 and 20.

A PATIENT, forty-one years old, from whom Pean had removed a hypertrophied lymphatic gland in 1892, one year later had a recurrence. The second operation showed a malignant tumour of the gland, which was connected with the larynx. The gland, the cricoid cartilage and five tracheal rings were removed. In May, 1893, the author saw the patient. The laryngoscope showed an intact epiglottis, the whole larynx filled with granulations; but without a canula she became dyspnoeic. By galvanocautery the laryngeal canal was cleansed of the granulations and an artificial larynx introduced. The laryngeal tube of the artificial larynx was made of a spiral coil, so that it could be compressed and easily introduced and follow the movements of the neck without causing irritation. The patient could speak with a good voice and expectorate by the mouth. *Michael.*

Allen, A.—*Speech without a Larynx.* "Medical News," March 17, 1894.

THE larynx as far as the second ring of the trachea, which was stitched to the skin, was removed by Dr. J. Solis Cohen, a fistulous tract remaining at the upper end of the scar, and from the mouth the sac was funnel-shaped. Tracings by levers working on a drum are given of various letters and sounds. The movements of the tongue in phonation were proved to be normal by inserting false palates whitened with chalk.

The author considers, with Dr. Cohen, a cicatricial band at the posterior edge of the sac would be the vibratory band, but was unable to explain an undoubted connection between the respiratory movement and phonation.
R. Lake.

Grayson, C. P.—*Carcinoma of the Larynx with consecutive Epithelioma of the Lip.* "Med. News," April 7, 1894.

THE question of contagion and of metastasis is discussed, the author leaning towards the former.
R. Lake.

Lanz (Bern).—*Extirpations of the Larynx in the Surgical Clinic of Bern.* Inaugural Dissertation. Berlin: Schulunach. 1892.

TWELVE cases—six partial extirpations and six total extirpations—in four of which a part of the pharynx or œsophagus had been removed. Three of the partial extirpations were performed on account of cancer—one four years without recurrence. Of the six total extirpations, only one of the patients is alive—free from recurrence six months after operation.

Michael.

Jay (Paris).—*Intra-Tracheal Injections of Menthol in Pulmonary Tuberculosis.* Thèse de Paris, 1894.

THE author introduces into the trachea by a laryngeal syringe an oily solution of menthol, one in twenty. He injects once or twice a day five cubic centimètres of that solution. The antiseptic and analgesic effects of the menthol give an immediate relief in the tuberculous subjects, and a constant amelioration of cough and expectoration.
A. Cartaz.

Solly, S. E.—*Report upon Cases of Tubercular Laryngitis treated in Colorado Springs.* "Therapeutic Gazette." Nov. 15, 1893.

THE author deals with a large supply of material, and only gives cases which have been under observation for two years and upwards. He expresses his conviction that the majority of cases of laryngeal infection are of deep origin, and only the minority are infected by the passing sputum. He draws a favourable comparison between the high altitude of the springs (six thousand feet) and low altitudes in these cases. Out of two hundred and fifty cases of pulmonary disease the larynx was infected in eight per cent. The relative positions of the ulceration are stated. Those on the arytenoids and false cords alone showed an entire absence of improvement. Of the non-ulcerative, six were cured, eleven improved, five died, and three became worse. Of the ulcerative, two were cured, three improved, and fifteen died.
R. Lake.

Hajek.—*Case of Laryngeal Tuberculosis cured by Extirpation of the Epiglottis.* Gesellschaft der Aerzte in Wien. Meeting, March 9, 1894.

THE author removed the epiglottis in a case of severe tuberculous ulceration. The wound was touched with lactic acid. There was also infiltration of the right ventricular band, which the author extirpated by Krause's curette. This wound also was treated by lactic acid. Both wounds healed. Some weeks later the larynx was cured, the catarrh of the lung disappeared, and the weight of the patient increased nineteen pounds.

Michael.

Senyey (Budapest).—*Foreign Body in the Trachea—Tracheotomy.* "Pesther Med. Chir. Woch.," 1894, No. 12.

A GIRL, six years old, swallowed (two weeks before she came under observation) a piece of wood. This was followed by attacks of suffocation, especially in the evening. When seen the child had stertorous respiration, attacks of suffocation, and dyspnœa on movement. Tracheotomy was performed, and followed by free respiration, so that it was presumed that the foreign body was lying over the opening of the trachea. Immediately following operation she suffered with general bronchitis. By laryngoscopic and tracheoscopic examination no foreign body could be found. Respiration remained free, so that it was believed that the foreign body had been expectorated unobserved. The tube was removed a month later, and was followed by a sudden attack of coughing, lasting twenty minutes, and ending by the expectoration of a piece of wood eleven millimètres long and eleven millimètres broad. The cure was complete.

Michael.

Caven, John, and Weir, Thomas.—*Foreign Bodies in the Stomach and Trachea.* "Canadian Practitioner," Feb., 1893.

THIS is a detailed statement of the case of an insane man who swallowed a silver-plated knife, silver-plated fork, and silver-plated spoon. On the following morning the patient complained of nausea, and when examined the articles could be felt through the abdominal wall, and on manipulation a distinct clinking could be heard in the stomach. Until within a week of his death (three months after swallowing the table utensils) his condition was much the same as it had been previously. At the autopsy a piece of glass, flat and four-sided, measuring thirteen-sixteenths, thirteen-sixteenths, four-sixteenths and fifteen-sixteenths of an inch on the different sides, was found lodged at the bifurcation of the trachea. During the life of the patient there had been no indications of a foreign body in the air passages. The glass had evidently been there for some time, as the mucous membrane was scarred by the sharp edges of the object. The stomach was found to be strongly adherent to the ileum and transverse colon, the surface embraced in the adhesions being about the size of a half-crown piece. The point at which the stomach was involved was about one and a half inches from the pylorus on the great curvature; ileum four inches from the ileocaecal valve; colon nine inches from caecum. The handles of the knife and fork could be felt passing down through the ileum from the point of adhesion, and their extremities lodged in the caecum; the bowl of the spoon could be felt in the duodenum, concavity forward, and its tip had caused ulceration through the anterior wall of the duodenum with a slit-like perforation into the peritoneal cavity, three and a half inches from the pylorus. The measurements were found to be as follows:—Knife, nine and a quarter inches long; fork, seven and seven-eighths inches; spoon, five and seven-eighths inches.

George W. Major.

Scherck, H. J.—*A Case of Fractured Rib as a result of a fit of Violent Coughing.* "New York Med. Journ.," April 7, 1894.

THE title explains the communication.

R. Lake.

Day, F. L.—*Twenty-six Cases of Intubation of the Larynx.* "Boston Med. and Surg. Journ.," April 12, 1894.

EIGHTEEN of the patients died, and eight recovered.

R. Lake.

Schlesinger.—*On Laryngeal Symptoms in Tabes Dorsalis.* Vienna Med. Club, May 2, 1894.

IN tabes three forms of laryngeal complications are observed: (1) Paralysis, (2) laryngeal crises, (3) ataxic motions of the vocal cords. Sometimes also ictus laryngis (vertigo laryngis) is noticed. Sometimes the laryngeal symptoms occur in the beginning of the disease; more often they arise later. The most common is the bilateral paralysis of the postici. The author examined such a case *post-mortem*, and found the medulla oblongata, the nuclei of vagus, and accessorius normal, but there was in both recurrents a marked degree of degenerative neuritis, and progressive degenerative atrophy of the crico-arytenoidei postici. The laryngei superiores nervi were intact. For the laryngeal crises a certain anatomical cause could not be found.

Michael.

THYROID GLAND.

Hurthle (Breslau).—*On the Methods of Secretion by the Thyroid Gland.* "Deutsche Med. Woch.," 1894, No. 12.

OF all the hypotheses concerning the secretion of the thyroid gland, that one is most universally preferred that holds the gland to have a specifically important rôle in the chemistry of the body, either by destroying excreted products, or by production of a specific secretion necessary for life. The hypothesis is proved by the symptoms arising after removing the gland, and by the possibility of curing these symptoms by the administration of thyroid gland. The specific secretion cannot yet be produced chemically. The morphology of the gland also seems to prove this hypothesis. The author's experiments show that there are two forms of secretion: firstly, secretion of the follicular epithelium, *i.e.*, colloid formation; and, secondly, that formed by destruction of the cells. The secretion has no proved connection with the nervous system; for faradic irritation of the nervi laryngei and the sympathetici, the nutritive nerves of the gland, the secretion is not influenced. If in animals a large portion of the thyroid gland is removed the remainder of the gland shows signs of increased activity, the colloid in the epithelium being increased. Colloid production is also increased by ligature of the ductus choledochus. The contents of the follicles is absorbed in two ways, either by rupture of the follicles, or through the intercellular spaces.

Michael.

Rehn (Frankfurt-a-M.).—*On Morbus Basedowii (Grazes' Disease).* "Deutsche Med. Woch.," 1894, No. 12.

THE author believes that the symptoms of Basedow's disease are caused by auto-intoxæmia from excessive absorption of the secretion of the thyroid gland. In no case of the disease has total absence of the goitre been observed. Not only patients with tracheal stenosis, but all who have a

progressing form of the disease, should be operated on. As long as there is no danger the goitre may be treated by ice compresses or by the constant stream, but usually both these methods have no effect. The results obtained in myxœdema by feeding with thyroid extract show the great power of this substance, and if too much of the gland is used the same symptoms are produced as by Basedow's disease. In very advanced cases operation will have no effect, and, moreover, is dangerous, especially from paralysis of the heart. Therefore the cases should be operated on early. The author concludes with the history of a case showing a high degree of cachexia much improved by extirpation of a large part of the gland. The permanence of the result could be demonstrated eight years after operation. *Michael.*

Crook, J. K.—*A Clinical Lecture on Exophthalmic Goitre.* "New York Med. Journ.," April 7, 1894.

THE author upholds the theory that the affection is a neurosis—that there is no satisfactory explanation for the rapidity of the heart's action. He also draws special attention to the symptoms of anæmia and hemidrosis in the case shown to the class. *R. Lake.*

Booth, J. A.—*Exophthalmic Goitre; Thyroidectomy.* "New York Med. Journ.," March 24, 1894.

A WELL-MARKED case in which the right lobe was excised. The pulse rate fell from 150 to between 96 and 110 four months after the operation, and many nervous symptoms disappeared, as did palpitation; the exophthalmos was also improved. The remainder of the gland had diminished in size. The symptoms of exophthalmos had only existed six months, and that of goitre two years. *R. Lake.*

Newton, R. S.—*Exophthalmic Goitre; Throidectomy.* "New York Med. Journ.," March 24, 1894.

THE whole gland was excised, only a supernumerary gland being left. The pulse rate fell from 180 to 100, and the exophthalmos had disappeared in five months. The patient was only twelve years of age. *R. Lake.*

Shepherd, Francis J.—*Enucleation of Tumours of the Thyroid Gland.* "Montreal Med. Journ.," February, 1894.

IN one case, operated on in July, 1893, the capsule was cut through after ligating the thyroid arteries. The tumour was readily shelled out, and the hemorrhage was trifling. In a second case, operated on in September, 1893, the growth was larger, and extended below the clavicle. Attached to it were a number of small vessels spreading out like the branches of a tree, but none of them required tying. He considered enucleation as the operation of the future. The growths in both cases were cystic.

George W. Major.

Schnitzler, Albert.—*Demonstration of Specimen from a Woman who died a short time after Operation for Goitre.* Gesellschaft der Aerzte in Wien, Meeting, May 11, 1894.

THE patient, aged thirty-one, suffered with goitre and all the symptoms of Basedow's (Graves's) disease. She was operated on by Prof. Schnitzler,

and died half an hour after the operation. There was a persistent thymus, hypertrophy of all the lymphoid glands and lymphoid follicles of the tonsils, tongue, and intestines. A large thymus is often found in cases of morbus Basedowii, and may have been the cause of death, and is often combined with a hydropic state of the blood. *Michael.*

Chappell, W. F.—*A Case of Tuberculosis of the Thyroid Gland.* "Manhattan Eye and Ear Hospital Reports," Jan., 1894.

THE thyroid had been affected two years, having been swollen, hard and tender for three months, since which time there has been a discharging sinus over the isthmus. The patient now also suffers with laryngeal and apical tuberculosis. *R. Lake.*

Faber, Knud (Copenhagen).—*Papilliferous Cysts of the Thyroid Gland.* "Hospitals-Tidende," 1893, No. 42.

A MAN, aged fifty, had during six years a stationary swelling of the thyroid gland, the tumour, however, now and then increasing somewhat, and then again returning to its usual size. Suddenly the tumour caused metastasis in the lungs, the heart, the peritoneum, the liver and the intestines, causing death, and the examination of the goitre showed that it was of cystic structure, the cysts containing numerous papilliferous masses without any trace of carcinomatous growths. *Holger Mygind.*

Leichtenstein (Köln).—*The History of the Question of Myxædema.* "Deutsche Med. Woch.," 1894, No. 11.

THE author remarks that he forgot to mention in his paper that Semon proved in 1883 the relation between cretinism, cachexia strumipriva, and myxædema and the loss of the thyroid gland. *Michael.*

E A R S.

Shaffaer, C.—*Ruptures of the Membrana Tympani.* "New York Med. Journ.," May 12, 1894.

NOTHING new.

R. Lake.

Caldwell, George W.—*Transillumination of the Mastoid Cells as a Means of Diagnosis of Mastoiditis Interna Suppurativa.* "Canada Lancet," July, 1893.

THE apparatus required is a battery capable of developing ten volts, but not to burn out a lamp of two or three candle power. The lamp is covered by thin rubber tubing, fenestrated at one side, and made to fit snugly at the meatus by a washer of larger tubing. In a dark room the lamp is placed in the external auditory canal, with the fenestra directed backwards. When the current is turned on, a healthy mastoid is illuminated with a ruddy glow, extending from the apex to the lateral sinus, and upward to the limit of the cells. Where the canal is small, obstructed or painful, the transillumination may be carried out in a different manner. Place a speculum in the canal, as for an examination of the membrana

tympani, encase the lamp in a piece of rubber tubing which projects slightly beyond, and press against the mastoid, when the external auditory canal and tympanum will be filled with a rosy light from the posterior wall. By varying the position of the lamp different portions of the mastoid, the limitations of the cells and the position of the lateral sinus may be accurately mapped out, and the particular region in which a pathological process exists may be demonstrated. If the cells be occupied by a purulent collection, the glow will be absent, the cells will be dark. Comparison with the opposite side renders the diagnosis more complete. This method cannot but prove of value in obscure cases of suppurative mastoiditis where the external indications of suppuration are absent.

George W. Major.

Dahl, Hans (Christiania).—*Diplacusis*. "Norsk Magazin for Lægeviden-Skaben," 1893, No. 6.

THE author relates three cases of diplacusis caused by acute catarrh of the tympanic cavity, and one case caused by labyrinthine disease.

Holger Mygind.

Burnett, C. H.—*A Case of Otitic Brain Abscess—Operation—Recovery*. "Annals of Ophthal. and Otol.," April, 1894.

THE patient, a girl of sixteen, suffered with double otitis media suppurativa after influenza. She had an attack of vomiting, followed by unconsciousness on November 24th, 1893. She had then a high temperature, and pain before admission behind the right ear and dilated pupils. The temperature fell to subnormal, and continued so until December 15th, when she had a convulsion, with Cheyne-Stokes' respiration, extreme flexion of the left arm over the chest, increased left knee jerk and ankle clonus; in an hour's time she became comatose, with a pulse rate of 120. Dr. De F. Willard trephined over the right temporo-sphenoidal lobe, removing three and a half ounces of green fetid pus. The pulse rate just before the operation rose to 184. The patient completely recovered.

R. Lake.

Pomeroy, O. D.—*On the propriety of using Stimulants and increased Nutrition in relieving the pain of acute Otitis Media*. "Annals of Ophthal. and Otol.," April, 1894.

THE above describes the paper.

R. Lake.

Rasch (Copenhagen).—*On the Frequency and Importance of Otitis Media in Sick Infants*. "Hospitals-Tidende," 1893, Nos. 18 to 20.

THE author has examined the middle ear in sixty-one cases of *post-mortem* examinations of children up to two years of age. Only in five cases—*i.e.*, in eight per cent.—was the middle ear normal; in forty-six cases—*i.e.*, in 75.5 per cent.—otitis media suppurativa was found in either one or both ears; and in eight cases—*i.e.*, 14.5 per cent.—simple catarrhal otitis media was present. In nearly all the cases in which death was caused by broncho-pneumonia (forty-three cases) otitis media was present, but had not been diagnosed during life on account of the membrana tympani being rarely perforated, although pus was found in seventy-seven per cent. of these cases. In several of the cases the children had exhibited

brain symptoms, which had several times been so conspicuous that meningitis was diagnosed during life, while the *post-mortem* examination revealed no affection of the brain or its membranes. The author calls attention, therefore, to this source of error in the diagnosis in cases of broncho-pneumonia. In forty-three cases the exudate was examined more minutely, and in thirty-three pneumococci were discovered. Whenever pneumococci were found the tympanic membrane was not perforated. Perforation of the membrane was, on the whole, very rare, appearing in only four of the sixty-one cases examined. The author is inclined to the opinion that infantile broncho-pneumonia plays some part in the etiology of deaf mutism, the otitis media being propagated into the internal ear.

Holger Mygind.

Bacon, G.—*Middle-Ear Operations.* "New York Med. Journ.," April 14, 1894.

A RÉSUMÉ of the recent literature, the author falling in with Blake's views and advocating Blake's "exploratory tympanotomy," also quoting one of his cases left with severe tinnitus after excision of the ossicles.

R. Lake.

Dodd, O.—*Conjugate Deviation of the Eyes with Middle-Ear Suppuration.* "Chicago Med. Record," Feb., 1894.

THE patient suffered with left purulent otitis after influenza, which gave rise to severe symptoms—vertigo and vomiting, with a pulse rate of 120, slight left facial paresis, and deficiency of ocular movement. The following day conjugate deviation to the left was strongly marked. Under treatment all the symptoms disappeared, and the patient recovered. The author then proceeds to review the literature of the subject and his reasons for considering this as a reflex spasm.

R. Lake.

REVIEWS.

Goldschmidt, Sigismund (Reichenhall).—*Tuberculosis of the Lungs: its Etiology, and a Review of the New Methods of Treatment.* ("Tuberkulose und Lungenschwindsucht, ihre Entstehung und kritische Ueberschrift ihrer neuesten Behandlungsmethoden, nebst Anhang ueber familiener krankeriger an Schwindsucht.") Leipzig: B. Koenig. 1894. 42 pages.

THIS little book contains no new material, but it should be commended, as the author gives an excellent review of the different forms of tuberculosis and their treatment. He begins with a review of the theories before the discovery of the bacillus; then speaks of the influence this knowledge has had on the different clinical forms of tuberculosis and their relation to the mode of infection. The next chapters treat of the influence of disposition and heredity on the development of the disease, with special regard to all the important publications on this subject. Concerning therapeutics, the author has a rather sceptical standard and believes that hygienic prophylaxis should have the first place in the battle against tuberculosis. The most important part of the work is the

appendix, containing communications on the progress of the disease in four families with a hereditary tendency to tuberculosis. This part will be an important contribution for further statistical investigation. *Michael.*

Bresgen, Maximilian (Frankfurt-a-M.)—*Der Kopfschmerz bei Nasen und Rachenleiden seine Heilung. Unter besonderer Berücksichtigung der angeborenen und erworbenen Unregelmässigkeiten der Nasenseidewand. Nach einem un aerztlicher Verein zu Frankfurt-am-Main am 5 December, 1892, gesellen Vortrage bedeuten erweitert und mit entsprechenden Krankengeschichten versehen.* Leipzig: Laukammer. 1894. Sixty pages. ("Headache in Nasal and Pharyngeal Disease, and its Cure, with special regard to congenital and acquired irregularities of the Septum, with Cases.") Paper read in the Aerztlicher Verein in Frankfurt-am-Main on the 5th December, 1892.

A REPORT of the paper reprinted in the "Münchener Med. Woch.," January 5th, 1893, has been given in this Journal. This little book contains more histories of patients than the paper, and is also increased by a rich review of the literature of the subject. *Michael.*

Rosenberg, Albert (Berlin).—*Die Krankheiten der Mundhöhle des Rachens und des Kehlkopfs, mit Einschluss der Untersuchungs und Behandlungsmethoden. Für praktische Aerzte und Studierende. Mit 178 Abbildungen und eine lithogr. Tafel.* Berlin: Karger. 1893. 329 pages. ("Diseases of the Mouth, Pharynx and Larynx, including the Methods of Examination and Treatment. For Practical Physicians and Students." With 178 Woodcuts and a Chromo-lithograph Plate.)

THE author, twelve years the assistant of Prof. Fraenkel, bases his work on sixteen thousand cases from the laryngeal policlinic of Berlin. He has described all of interest in this specialty without excess of detail. The chapter on diseases of the mouth is illustrated excellently, especially illustrating the different micro-organisms of the mouth. The different forms of stomatitis, including the rarer forms, are mentioned. The chapter on diseases of the pharynx, their symptomatology, and the relation of these diseases to general health, is very clearly treated. The same may be said of the chapters on examination, diagnosis and treatment of pharyngeal disease, which include a description and plates of all necessary instruments for treatment. The symptomatology of the diseases is clear, the treatment simple without verbosity, and common sense is always regarded. The same may be said of the chapters containing the diseases of the larynx. The chapters on malignant neoplasms, on nervous disturbances and on intubation, are the most extensively treated.

If this report on the book is only a short one, it is not a sign that it is not worthy of a longer one; but, on the contrary, it is not necessary to say much, because the book gives exactly the present state of the specialty in a concise manner, neither too much nor too little—it only gives that which is commonly acknowledged, without uncertain hypotheses. It is not written for specialists, but for students and practitioners. A better handbook could not be edited. *Michael.*

NOTES.

Dr. MAX THORNER, Professor of Laryngology and Otology in the Cincinnati College of Medicine and Surgery, has been elected along with Dr. W. ROADS to organize and conduct a new special department for Diseases of the Throat and Nose in the Cincinnati City Hospital.

Dr. NORRIS WOLFENDEN and Dr. MACINTYRE have been elected Corresponding Fellows of the American Laryngological Association.

THE next Meeting of the BRITISH LARYNGOLOGICAL ASSOCIATION will be held in London, on Friday, July 13th.

OWING to the press of matter the notices of several new books sent for review have had to be held over.

THE NATURAL MINERAL WATERS OF

VICHY**(STATE SPRINGS).****CELESTINS.**—For Diseases of the Kidneys, Gravel, Gout, Rheumatism, Diabetes, &c.**GRANDE-GRILLE.**—For Diseases of the Liver, Biliary Organs, &c.**HÔPITAL.**—For Stomach Complaints.**HAUTERIVE.**—An excellent TABLE WATER.**CARLSBAD****NATURAL MINERAL
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Founded in 1887 by MORELL MACKENZIE and NORRIS WOLFENDEN.

EDITED BY

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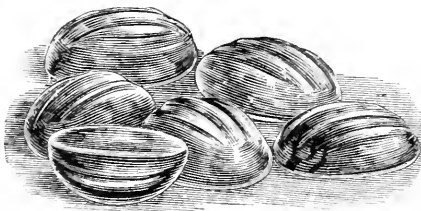
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27. **COMPOUND EUCALYPTUS.** (Red Gum, Chlorate of Potash, and Cubebs.)
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29. **COMPOUND RHATANY.** (2 grains of Extract of Rhatany and 1-10th grain of Hydrochlorate of Cocaine.)
Dose: From four to six a day.
30. **BORACIC ACID.** (1 grain.)
31. **RED GUM and COCAINE.** (Containing Red Gum and 1-20th gr. of Hydrochlorate of Cocaine.)
32. **RED GUM and CHLORATE of POTASH.** Astringent.
33. **RHATANY and CAPSICUM.** (2 gr. of Extract of Rhatany.)
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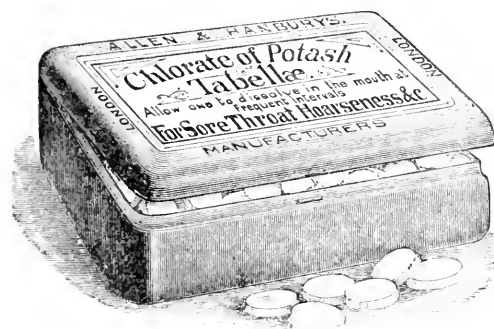
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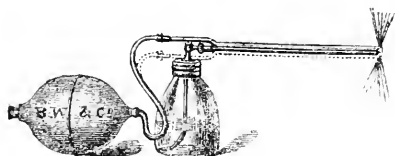
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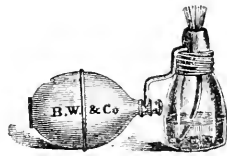
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THE
JOURNAL OF LARYNGOLOGY,
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AUGUST, 1894.

No. 8.

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The Editors are not responsible for opinions expressed in original Articles or Abstracts in this Journal.

Editorial Communications are to be addressed to "Editors of JOURNAL OF LARYNGOLOGY, care of F. J. Rehman, Albion Chambers, 11, Adam Street, Strand, London, W.C."

**THE LOCAL TREATMENT OF TUBERCLE OF THE
LARYNX AND ITS INDICATIONS.**

(Conclusions.)

By Dr. THEODOR HERYNG.

1. Tubercle of the larynx, or, rather, the laryngeal phthisis induced by it, can heal by itself, without any local treatment. Most frequently the ulcers heal on the vocal cords and posterior wall of the larynx. Very rarely the more serious cases with infiltration and proliferation products with deep ulcers, also affections extending to the cartilage, accompanied with aphonia and severe dysphagia, lead rapidly to disintegration and extension to the lungs.

2. Out of about three thousand cases of laryngeal phthisis which I have collected during the last eight years, I have observed spontaneous healing in fourteen. These were simple cases of slight laryngeal phthisis, without any affection of the epiglottis or the cartilages of Santorini. The ulcers were found most frequently either on the vocal cords or on the posterior wall of the larynx, less frequently on the false cords. These were healed by inhalations only, along with general and climatic treatment, without local interference. The healing process required in some cases three to eight years. The patients were nearly all about forty years of age. The lung affection was mostly of a fibrous nature, not extensive, more often confined to one side; the nourishment as well as strength and appetite were good. The majority of these patients belonged to the better class. The laryngeal affection was of a chronic nature. The treatment was begun in the very first stage of the disease and continued throughout. In

these cases dysphagia was very slight; the hoarseness, however, was considerable.

3. Those cases in which the disease shows itself in the form of infiltration or tumour-like excrescences on the posterior wall of the larynx, which become chronic, and in which the epiglottis and cartilages of Santorini are little or not at all affected, give the best chances of recovery.

4. Relative results can be gained in many cases of chronic unilateral disease, with concurrent infiltrations which do not tend to break down, or with so-called tuberculous tumours of the true or false vocal cords.

5. Cases in which diffuse infiltrations of the larynx appear with rapid breaking down, deep ulcers on the epiglottis and the tumour of Morgagni which extend to the ventricle, necrosis of the arytenoid cartilages, showing symptoms of stenosis, and miliary tubercle: these give the worst prognosis.

6. The possibility of recovery depends first on the constitution and power of resistance of the patient, then on the anatomical character and extent of the lung affection, and further on the age and surroundings of the patient. The condition of the lung affection and of the nourishment of the patient indicate the issue.

7. Tumour-like infiltrations of the intra-arytenoid space lead to the formation of abscesses and general infection. These appear to be in many cases of primary origin, but more often they indicate a latent tuberculous condition of the lungs.

8. The chief indication in the treatment of tubercle of the larynx, which almost invariably is accompanied with tubercular disease of the lungs, is hygienic, dietetic, and climatic.

9. As in most cases of phthisis in the larynx severe dysphagia occurs, it follows that *the first and most important indication in the treatment to be considered is the removal of the dysphagia.*

10. *The second equally important indication* touches the special cases in which the breathing becomes difficult, and symptoms of stenosis appear on account of tubercular infiltrations and proliferation products.

11. The third indication has to do with the recovery of the impaired or lost voice.

12. In order to treat the dysphagia successfully we must endeavour to remove the causes. It is caused by:

(a) Tubercular infiltrations of the epiglottis, of the posterior wall of the larynx, of the lateral ligaments, and of the cartilages of Santorini.

(b) Tubercular ulcers arising from breaking down of the infiltrations and occupying the same position.

(c) Inflammatory processes, usually secondary, very often resulting in inflammation of the cartilage and necrosis.

13. The principle of general treatment of dysphagia must be based on resting the diseased organ—avoiding speaking and anything which stimulates the diseased mucosa.

14. The healing of deep ulcers of the larynx resting on inflammatory infiltrations, surrounded by proliferation products, and certain forms of

localized chronic laryngeal tubercle is effected quickest by scraping or rather *removal of the tubercular tissue*.

15. To these methods, the principles of which I published in 1887, I have to add now those of galvano-caustics and electrolysis.

16. Lactic acid is indicated in superficial circumscribed ulcers of a dirty character and covered with spongy granulations, situated on the vocal cords, the false cords, and posterior wall of the larynx; and in isolated superficial ulcers of the posterior surface of the epiglottis.

17. This remedy (lactic acid) is useless in most cases of large, hard and diffuse infiltrations.

18. The surgical treatment is indicated:

- (1) In tubercular tumours of the epiglottis;
- (2) In circumscribed chronic tumour-like infiltrations of the posterior wall of the larynx, which show little inclination to break down;
- (3) In chronic tumours resting on an inflammatory base, surrounded with proliferation products, *which resist all other methods of treatment*.
- (4) In partial disease of the larynx, even when the epiglottis, false cords and lateral ligaments are affected.

19. *Surgical treatment is contra-indicated:*

- (a) In advanced phthisis of the lungs with hectic and wasting;
- (b) In diffuse miliary tubercle of the larynx, or rather of the larynx and pharynx;
- (c) In all cachetic conditions;
- (d) In severe stenosis of the larynx caused by inflammatory swelling of the affected parts. In these cases tracheotomy must be performed as soon as possible.
- (e) In patients exhibiting fear and nervous excitability, mistrust of a physician and who are always changing their doctor, *especially those whose condition promises little hope of recovery*.

20. The surgical treatment demands on the part of the physician the greatest sacrifice for the patient: patience, great perseverance, thorough *knowledge of the operation*, and well made sharp instruments. *The operation must be done in the patient's home, or in the hospital.* The after treatment requires the greatest attention and the patients must be kept under observation for months, often years.

21. With the proper application of cocaine the operation itself is not painful. Submucous injection of cocaine is hardly ever necessary.

22. *It must be explained to the patients and their friends before the operation that the dysphagia cannot be removed at once by surgical interference, that it is very often increased for a few days and further that the operation does not effect a radical cure.* It is also advisable to tell the patients that the radical removal of the accessible parts is very seldom successful in one sitting, *that in spite of a successful operation the disease in the larynx may return, and that the physician can give no guarantee of ultimate restoration to health.*

23. The galvano-caustic treatment of hard tumours of the false cords

—of sclerotic infiltrations of the epiglottis and formation of granulations in the ventricles, is *often* of use. In patients who are afraid of the knife, and who are patient enough, *the electrolytic treatment may be tried*. The physician must have a thorough knowledge of how to administer it, and the batteries must be accurate and provided with a rheostat and galvanometer. The disadvantages of this are pain and the length of time of the operation. The advantages are avoidance of bleeding.

24. Pyoktanin (one to two per cent. solution) has proved a very good means of preventing inflammation in the parts operated on. It must be applied to the surface of the wound twice a day.

25. Serious bleeding after the operation is very rare. It can be readily stopped by the application of a mixture of lactic acid and liquid ferri sesquichlor. in equal parts.

26. A dissemination of the tubercle and increase of the lung affection after surgical interference has been observed in some cases. This result has been of extremely rare occurrence in the two hundred and seventy cases collected by me; but it may take place, particularly with those patients who, after the operation, neglect after treatment and expose themselves to injurious influences, such as taking cold, etc.

27. With proper after treatment the parts operated on heal in from three to six weeks.

28. *Nearly the whole of the upper part of the larynx* is accessible to surgical treatment by suitable instruments. It should be a rule in surgical treatment to excise as much of the affected parts as possible in one sitting. The double curette has the advantage over the single curette in certain cases.

29. Recurrence takes place frequently at the place operated on, sometimes at a little distance from it. It is explained *not only by the inaccessibility of certain parts of the larynx for our instruments*, but also by the imperfect performance of the operation. In most cases, however, the recurrence is due to the disease spreading to the lungs and the insufficient power of resistance to the infection.

30. The want of success in treating cases of laryngeal phthisis by surgical or therapeutic means is often due to the disease being recognized too late for treatment to be of any use.

31. Bad cases of laryngeal phthisis ought to be treated in climatic establishments set apart specially for consumption. It would be desirable that the physicians in such establishments should acquire the art of operative treatment *as long as we are unable to exercise other means which will take the place of the surgical treatment necessary in many cases*.

32. The power of absorption in severe tubercular infiltrations, as also the likelihood of healing of even extensive ulcerous processes of the larynx, with complete restoration of the voice, has been proved by anatomical and microscopical preparations as well as by long-continued clinical observation.

The NATURE of SO-CALLED FOLLICULAR TONSILLITIS and its RELATION to INFECTIOUS DISORDERS.¹

By Dr. NORRIS WOLFENDEN.

Mr. President and Gentlemen,—After some consideration, the subject which I have finally decided to ask you to discuss with me is one which is familiar to us all. It is also one upon which a very great deal has been written within the past few years: a great deal of solid scientific fact has been acquired, and we are under the necessity of recasting the views which have been commonly held. Without further prelude, I shall therefore endeavour to put before you a review, imperfect I admit, of what has been acquired to the knowledge of tonsillitis within the last few years.

If we take up an old standard work, *e.g.*, that of Morell Mackenzie (than which no finer text-book was ever published), we find the five varieties of tonsillitis described by Wagner reduced to two clinical forms—(1) superficial or follicular tonsillitis; (2) deep or parenchymatous tonsillitis.

The first variety is regarded as a milder form of tonsillitis in which the follicles exude a white secretion which adheres to the point of exit. This secretion, which sometimes extends over the pharynx, bears then some resemblance to the false membrane of diphtheria, but possesses neither texture nor adherency, and can easily be wiped off the surface of the glands. Mackenzie mentions paralysis of the pharynx and palate as sometimes occurring after quinsy, but does not refer to albuminuria. As to its epidemic form, he considers that there is great difficulty in distinguishing cases of simple tonsillitis from epidemics of scarlet fever, but believes the epidemic described by Mayenc to have been purely tonsillar, thereby admitting the possibility of "epidemic tonsillitis."

In discussing the "mild or catarrhal" form of diphtheria, the same authority speaks of the bright red mucous membrane, upon which appear "minute accumulations of yellowish matter, not much exceeding the size of a pin's head, adhering to the surface of the tonsils, or to the posterior wall of the pharynx," which may be readily removed with a camel's hair brush. A quick recovery is the rule, though there is great prostration during the illness, and weakness after. There is sometimes a trace of albumen in the urine, but occasionally "the first evidence of the true nature of the throat affection is the occurrence of the characteristic paralysis. The appearance of one or other of these symptoms often forms the only clue which the physician has to the nature of the primary affection, which in all other respects closely resembled a simple sore throat."² A severe type of diphtheria may, however, be engrafted upon this mild form.

Now, none of these points are characteristic of true diphtheria, and such

¹ A paper read at a meeting of the British Laryngological Association, July 13, 1894.

² Morell Mackenzie. "Diseases of the Throat," Vol. I., p. 149.

cases, with which we have all so frequently met, are the despair of the clinician. In the last published large text-book, viz., that of Bosworth, we find follicular tonsillitis described as a "croupous" tonsillitis, and an endeavour made to uphold the historical differentiation between croupous and diphtheritic membranes, which we cannot but regard as rather unfortunate. The use of these two terms has led to much confusion in the past, and the significance of their distinction has vanished in the face of modern pathology, and especially bacteriology. That "follicular tonsillitis" should be "croupous" in the sense of there being fibrin in the exudation scarcely justifies its distinction of "croupous" as opposed to "diphtheritic," since the occurrence of fibrin is merely indicative of the extent of the injury. Neither is the occurrence of the membrane of diphtheria itself distinctive, since numerous caustics may produce identical membranes, and Heubner produced them in the bladder of the rabbit by ligaturing above and below, so as to procure stasis. As Bulloche remarks, they may be produced by any agent capable of necrosing the epithelium and producing violent inflammation of the mucosa. Moreover, they occur under various conditions—*e.g.*, herpes, scarlatina, syphilis, etc.—they may be produced by various micro-organisms, and are only to be regarded as truly diphtheritic when they are associated with a special bacillus (Klebs-Loeffler).

Roux and Yersin have described many cases of primary pseudo-membranous anginas which were not diphtheritic. Netter has found the membranes of the larynx associated with the pneumococcus (Loeffler's bacillus being absent). Bulloche has obtained cultures of streptococcus from two cases; Netter, streptococci and staphylococci, and Baginski the same in fifteen cases out of ninety-three. The staphylococcus aureus has been found by Sevestre and Gaston in the diphtheroid stomatitis occurring in infants after measles and whooping-cough. All this merely indicates that there is nothing specific in a fibrinous exudation, and that it is not necessarily a diphtheritic process. The false membranes of puerperal diphtheria have been shown by Widal to be due to the streptococcus pyogenes.

If fibrin is exuded into the tonsillar crypts, it is only therefore a sign of a certain intensity of degree of inflammation, and it is a pity to go back to the use of a term which may be misleading. Many of the distinctions which Bosworth gives between diphtheritic and croupous membranes have a certain clinical value, though we do not think so great as he attaches to them, but they have little pathological importance. It is therefore better to avoid the use of such a term as "croupous."

Jacobi, in 1888, propounded the statement that what we call "follicular tonsillitis" is really diphtheria—a bold view, which, notwithstanding the authority of its originator, few will be found to support.

Koplik recently ("New York Medical Journal," 1894) has described several cases of "lacunar diphtheria," which would lend some support to these views. However, in eighteen cases out of thirty-nine examined for lacunar diphtheria, and all presenting the typical appearance of acute lacunar tonsillitis, only staphylococci and streptococci were found.

The very term "follicular" is really erroneous, since it is not the follicles of the tonsil which are affected, except in a very secondary manner and in a

few cases. It is the tonsillar crypts or lacunæ which are the chief seat of the disease, and a more correct, if more cumbrous, name for the condition is that used by Sokolowski and Dmochowski, viz., *Tonsillitis lacunaris chronica desquamativa*, which when showing catarrhal exacerbations becomes *Tonsillitis lacunaris chronica desquamativa exacerbata*, and when assuming the form of the "infectious angina" of the French writers, or "lacunar angina" of the Germans, becomes, according to the Polish pathologists, "*Tonsillitis lacunaris pseudo-membranacea*." Their work, contributed to the "*Deutsches Archiv für Klinische Medicin*," 1892, No. 49, is of such importance that I shall make no excuse for dwelling upon it, especially since it is, so far as I know, the only complete account of the pathology of these processes, and, moreover, it is more or less confirmed by pathological investigations which have been made by myself and Mr. Lake, and which we shall take another opportunity of presenting to you.

In order to more completely understand the lacunar diseases of the tonsil, they commenced with the study of the commonly hypertrophied or enlarged tonsil, which cannot be regarded as a purely local disorder, but as an expression of a hypertrophy of the whole lymphatic system of the mouth and naso-pharynx.

The pathologico-anatomical condition of an enlarged tonsil explains an important factor in the etiology of the type of tonsillitis we have under discussion.

In such a tonsil we meet with varying degrees of softness or hardness, the fibrous tonsils in which the lacunæ and crypts are compressed out of existence, so to speak, being the most seldom met with. In the vast majority of cases we meet with a tonsil which is enlarged in various directions and soft, but of which only one condition need detain us, viz., the nature of the lacunæ.

Sometimes the entrance into these lacunæ is widely open, and the lacunæ themselves are filled with semi-fluid contents. In harder tonsils the lacunæ are altogether smaller, with but few contents, which are generally of a gritty nature. The epithelium of the lacunar walls is hard, stratified and cornified. Each lacuna has small follicles surrounding it, and the number and size of these varies with the degree of hardness or softness of the tonsil, being smaller and fewer in the hard glands. Some of these lacunar walls appear to be warty, an appearance caused by the pushing outwards of the lacunar wall by enlarged follicles and connective tissue hypertrophy in the substance of the gland, or, as we have found sometimes, due to the partial detachment of a very large plug of cornified epithelium. Sometimes the lacunæ are narrow at the orifice and widened out lower down, and the epithelium is smooth and thin. Others, again, are closed at the orifice, presenting wide and broad spaces in their deeper parts. This closure of the orifice has been brought about by acute catarrh which has caused the union of the walls of the lacunar opening. Superficial erosions of the epithelium have been common in our specimens. In all these cases the collection of contents in the depth of the closed lacuna leads to its widening.

Changes in the follicles and adenoid tissue are generally insignificant.

the former being generally quantitatively and qualitatively increased, presenting bud centres, in which we have, along with Sokolowski, observed karyokinetic forms.

The contents of the lacunæ are turbid semi-fluid material which can be expressed out of the tonsil, and consist of masses of exfoliated epithelial cells and lymph corpuscles, in addition to which various micro-organisms occur—staphylococci, streptococci, diplococci, leptothrix. In one case Sokolowski found actinomycosis.

Such collections of matter in the tonsillar crypts or lacunæ must act as foreign bodies, or irritants, and it cannot be denied that in such places there could not possibly be better natural culture media for the development of micro-organisms. Common hypertrophy of the tonsils becomes therefore a most important etiological factor in the invasion of the system by certain infectious disorders.

We are now led to consider Sokolowski's second condition, viz., *Tonsillitis lacunaris chronica desquamativa*. These are the cases which would commonly be called chronic follicular tonsillitis, in which there are one or more "cheesy" follicles in the tonsil from which may be expressed the yellow turbid contents of the lacunæ, and which produce the symptoms of the feeling of a foreign body in the throat, burning and pain on swallowing and speaking. Rasping and hawking is followed by the extrusion of the foreign matter. In such patients more or less enlargement of the tonsils is found, with lacunar openings more or less distinct, and white-yellow spots on the tonsils, which sometimes might be mistaken for diphtheria or syphilis were not the extrusion of the cheesy matter easily obtained upon pressure. The yellow matter is of the same composition as described before, and is retained in the crypts by pressure upon their orifices. It is merely a desquamative process engrafted upon a hypertrophic condition of the glands, a lacunar catarrh, associated or not with some degree of parenchymatous inflammation, which chiefly affects the follicles near to the lacunæ, and which become hypertrophied. Upon this chronic catarrh frequently is engrafted an acute process, and we then reach the condition which Sokolowski terms *Tonsillitis lacunaris chronica desquamativa exacerbata*.

In this condition, an exacerbation is indicated by slight fever and severe pain; yellow-white spots are seen upon the tonsils, which are detached with some difficulty upon pressure. Bleeding may accompany their forcible expulsion, and they reform; or, small spots are visible under the mucous membrane, of the size of a hemp-seed, which look like yellow flakes. At the site of the flake small ulcerations occur. In a few days this heals and the pain disappears. A probe has to be introduced into the lacuna in order to extrude the contents, which often appear as if under the mucous membrane. Pressure ruptures the mucous membrane, and causes extrusion, but the lacuna frequently closes up again. In such a tonsil there is an increased desquamation of epithelial cells, which process must be rapid, because so many nuclei are found which will not stain. We have, by proper staining, also found a distinct inflammatory cell zone surrounding the lacunæ. The epithelium is infiltrated with lymph corpuscles and appears thickened. The follicles, adenoid and connective

tissue, appear scarcely or not at all altered. In the lacunar contents are various micro-organisms, which have nothing, however, to do with the process, since they are not present in all the lacunar contents. The breaking down of the cheesy matter, and the formation of fatty acids, etc., may, however, cause an exacerbation, or a catarrh spontaneously arises. The influence of the various micro-organisms depends upon their malignity, but at present we do not know very much of the characteristics of individual varieties in inflammatory processes. This is a variety of throat affection very often called "rheumatic sore throat."

We now come to the form of acute cryptic tonsillitis, which is in many ways the most interesting. It is that which Sokolowski terms *tonsillitis lacunaris pseudo-membranacea*, which answers to Bosworth's "croupous tonsillitis."

Of the three cases which Sokolowski details, and from which the tonsils were removed, which form the basis of Sokolowski's histological examination, all presented apparently more or less identical symptoms, viz., shivering, fever, enlarged cervical glands, and isolated white-yellow spots on the tonsils, which were apparently of lacunar origin, redness and swelling of the glands, and without recurrence after extirpation.

Histologically were found greatly widened lacunæ, with contents consisting of epithelial *débris* along with micro-organisms, and a fibrinous network. The nearer the orifice of the lacunæ the more micrococci were found. The relation of the fibrinous network to the tissues underneath was somewhat different to a typical diphtheritic process, in that it is quite superficial, and if necrosis of the epithelium exists at all it is only in certain and superficial spots. There is no special change in the lymphoid tissue or the follicles, except that upon double staining they found in the follicles lying near the lacunæ and in the lymph vessels and adenoid tissue many strongly coloured cells of large and irregular form, containing large nuclei, and resembling "plasma cells."

The second of the three cases examined by the Polish observers is important, in that no pathological changes except slight catarrh were found in the lacunæ, but the white-yellow mass on the surface of the tonsil, which lay thick over the lacunar openings and simulated secretion, formed really a typical diphtheritic membrane of fibrin and lymph cells, with diplococci. These authors conclude, however, that there was the same essential process in all three cases, *i.e.*, fibrin in the lacunæ, or on the surface, with pseudo-membrane, and superficial necrosis—the second case, however, being typically diphtheritic, and therefore most important as to the identity of these two processes (*angina lacunaris* and *diphtheritis*), the clinical symptoms are the same, the anatomical changes are the same, and the whole difference between them consists in the localization of the process. If it occur in the depth of the lacuna, it is then typical *angina lacunaris*, and as pathological anatomy shows no difference between the two processes, *angina lacunaris* must, according to these observers, be regarded as a pseudo-membranous catarrh. The authors are themselves a little afraid of so broad a generalization from such a limited number (three) of cases, and have made no cultures, or experiments upon animals.

In our opinion such a wide-reaching conclusion as to the nature of the process cannot be justified by merely anatomical findings. We may even express a doubt whether the second case referred to was in any sense a typical angina lacunaris, and not a mild form of diphtheritis, and we cannot say that the processes are identical without a careful bacteriological study of the cases. The presence of fibrin, which undoubtedly exists in all cases of a certain degree of intensity of inflammation, is merely indicative of the amount of local injury, and we cannot but think it an unfortunate use of language to designate such "pseudo-membranes."

Sokolowski's pathological researches go much further than Bosworth's, but both tend to confirm the opinion emitted by Jacobi in 1888, founded upon clinical observation, that all lacunar tonsillitis is essentially diphtheria. If the exudation runs over the surface of the tonsil we call it diphtheria, if it is confined to specks over the crypts we call it lacunar tonsillitis. It seems that such views may be carried too far, and that the one important point which alone can establish the diagnosis has been left untouched, viz., the detection and culture of the Klebs-Loeffer bacillus, which we may now, I think, call the proper criterion of diphtheria.

As opposed to the views of Sokolowski and Bosworth, B. Fraenkel, in 1886, writing upon this "infectious tonsillitis," differentiated it from true diphtheria by the *absence* of fibrin in the lacunar contents—this, however, is incorrect, the presence of fibrin being easily demonstrated—and he cultivated three kinds of micro-organisms, viz., staphylococcus pyogenes aureus, staphylococcus pyogenes albus, and a diplococcus. He did not deny that upon such cases of purely lacunar tonsillitis, diphtheritis might be engrafted.

Seifert confirmed Fraenkel, differentiating the process from diphtheria.

I do not intend further to develop the pathological anatomy of cryptic tonsillitis in this place, as we must pass on to the bacteriology of the subject.

The organisms met with in tonsillitis have been those commonly seen in suppurative processes, viz., streptococcus pyogenes, and staphylococcus, and in some few instances the pneumococcus. Gabbi found the latter in the small abscesses of follicular tonsillitis, and Rendu met with this organism in the saliva of a woman suffering from acute tonsillitis, who possibly had contracted it from an individual with pneumonia. Netter observed pseudo-membranes caused by this organism.

Tchanovsky found out of three hundred and eleven cases of catarrhal angina the staphylococcus or streptococcus pyogenes could be cultivated from the secretion of the tonsillar crypts in 82.7 per cent. of all cases.

Nothing is more certain than the presence of these organisms in the tonsillar exudation, and it is not in the least matter for surprise that this should be the case when we remember that one hundred varieties of micro-organisms have been described by Miller as existing in the normal mouth, while some of them may perhaps be the same organism in different stages of development—twenty-two individual organisms have been isolated and studied. It is an interesting question why these should suddenly, under some unknown conditions, produce pathological changes and invasion of the general system. There is something very tempting in

the doctrine of phagocytosis, and we cannot help wondering what part these large cells play, which Sokolowski described as existing in the follicles and adenoid tissue, and which my colleague Mr. Lake and I have observed *in the lacunæ*, in face of the fact demonstrated by Stöhr of a constant migration of leucocytes from the follicles into the lacunæ, and whether they are in any manner protective against bacillary invasion, or whether they are huge lymphoid cells. They are not phagocytes.

There is reason to justify the term "streptococcal" angina, which some French physicians have applied to this form of "infectious" tonsillitis, since it is to these organisms that we chiefly owe the lesions of visceral organs (endocarditis, swelling of joints, orchitis, ovaritis, enlargement of the spleen, etc.) which distinguish a general and "infectious" form of the same order from a simple cryptic tonsillitis. It is a question of the activity of these micro-organisms. When they are few, and develop but little, we have a purely localized process; when they develop rapidly we have a breaking down of the resistance of the tonsil, whether phagocytic or otherwise, and a general invasion of the system, and according as one or the other organism develops the most actively we have a certain impress given to the clinical picture of the whole disorder. No specific organism has yet been discovered, and we know as yet too little of the life-history of individual organisms to attempt any perfect classification of clinical forms. Yet this may be attempted, as we shall see later.

It is now thirteen years since, in 1881, Bouchard read a memoir at the London Congress upon "infectious nephritis," and the year previously Kannenberg had stated the opinion that the albuminuria occurring in certain anginas was due to a nephritis which was set up by the effort to discharge from the organism the micro-organisms which had invaded it. Many cases of "infectious nephritis" have been observed. It is now a matter of common knowledge that albuminuria, which was formerly considered to be a point of differentiation in the diagnosis of diphtheria from ordinary catarrhal tonsillitis, is not any longer to be considered as evidence of a diphtheritic process. The fact is, that it is rarely absent in cases of acute cryptic tonsillitis, and I have observed its occurrence in many cases that have come under my care. Sometimes the amount of albumen discharged has been very large, but in all the cases I have seen, it has been a transitory phenomenon; but this is not always the case, since it has been followed by anasarca and uræmic poisoning, an evidence of severe renal complication.

Boucsein related such a case occurring in an infant three weeks after the termination of a severe tonsillitis. Normally the occurrence of albuminuria is coincident with the occurrence of fever, and disappears with it. It has little prognostic significance unless it persists beyond the febrile stage of tonsillitis, when we are face to face with a nephritis. But we have in albuminuria no longer any trustworthy point of differential diagnosis between a simple tonsillitis and a diphtheria. Other lesions which may occur in cryptic tonsillitis are cardiac inflammations (endocardial and pericardial). Haig Brown³ found cardiac murmurs in thirty-

³ "Tonsillitis in Adolescents" (Paillière, Tindal), 1887.

three cases out of three hundred and forty-five of tonsillitis, *i.e.*, in nine per cent. They were commonly mitral systolic, and disappeared within three weeks. Boucsein found this occurrence in two cases out of forty-three. This is not a large proportion, but it must be recollected that were systematic examination made of the heart, these murmurs might be oftener detected. It is quite common, however, not to see the patient at a time when these endocardial changes might be evident. The severe condition of ulcerative endocarditis has been observed by Fraenkel and Fürbringer. Sallard draws attention to the fact that of five cases of tonsillar pyæmia which he had collected ulcerative endocarditis occurred twice, and pericarditis twice.

Affections of the respiratory organs are not so common in infectious tonsillitis, though pleurisy (often purulent) has been observed by Hanot, Feréol, Fraenkel, Metzner, etc. Rousseau described a curious case, quoted by Sallard, where, in a patient with severe unilateral tonsillitis, broncho-pneumonia supervened on the fourth day, followed by pleural effusion.

Pneumonia has, similarly to rheumatic fever, been ushered in by tonsillitis. In one case, described by Coursade, on the fourth day of a severe tonsillitis pneumonia and nephritis supervened, and the occurrence of suppurations of the tonsils, in the course of which pneumococcus has been found to be the predominant micro-organism present, have been signaled by Bobone, Gabbi, Prideau, Jaccoud, Rendu, and Netter.

Orchitis sometimes with suppuration, ovaritis, arthralgias, skin eruptions, erythema nodosum, purpura, and polymorphous erythema have been observed.

Phlegmonous adenitis may occur, and the enlargement of the cervical glands in acute cryptic tonsillitis is so common that one of the classical symptoms of diphtheria is no longer of value in differential diagnosis.

It would be easy to quote cases in detail illustrating these facts, but it is scarcely necessary, the conclusion to which we must come being that, in the presence of acute cryptic tonsillitis, which occurs in so many anomalous forms, we have to deal with a disorder which is eminently infectious as regards the general system; which may be contagious, which presents no constant clinical picture, and as to which the old classical landmarks of differentiation from diphtheria disappear, and the diagnosis of which must be mainly bacteriological.

There is one other clinical point to which I would devote a few remarks--*viz.*, the occurrence of paralysis.

Cases have occurred in my experience, and I have no doubt that you have met with many such, in which I have seen for the first time a patient with paralysis of the palate, even regurgitation of food through the nose, and occasionally with paralysis of accommodation. Most careful inquiry has elicited a story of a very slight sore throat which has not caused the patient to lie up even for a day. It is impossible to attach much importance to the patient's statements as to the condition or appearance of his throat, but in such cases it has presented symptoms so slight that the patient has noticed nothing himself. Yet these slight symptoms have been followed by evidences of severe intoxication of the system. In most of these cases

I have made the most careful inquiry as to the possibility of such patients having been in contact with diphtheria. But there has been an entire absence of any proof of such infection, and there has been no spread of disease to any other member of the family. It would be natural to conclude that such a patient had been suffering from a mild attack of diphtheritis, but the conclusion is scarcely justified from the clinical course of such symptoms. In the absence of bacteriological examination it would be wrong to say that such cases are or are not diphtheria. In view of the fact that in an ordinary acute angina such a variety of micro-organisms develop, not only the streptococci and staphylococci, but the bacillus crassus sputigenus, the cultures of which produce a powerful toxine (Kreibohm) and the pseudo-Loeffler's bacillus, etc., we cannot lay down a hard and fast rule that severe intoxication of the nervo-muscular system, evidenced by paralyses of greater or less intensity, must necessarily justify the diagnosis of diphtheria. We may, however, say that the purely "streptococcal" throats, though followed by streptococcal invasion of serous cavities and visceral organs, are not followed by intoxication of the nervous system. The subject is one full of difficulty, which bacteriology alone can decide. In mild forms of apparent lacunar tonsillitis there is sometimes an enormous development of virulent Loeffler bacilli, the cultures of which are intensely fatal to guinea-pigs. Yet such cases resemble in all respects lacunar tonsillitis, and would properly be called such from a clinical point of view were it not that bacteriology proves them to be lacunar diphtheria. Koplik has an interesting paper upon this subject in the "New York Med. Journ." for March 10th, 1894. It happens very frequently that lacunar tonsillitis or diphtheritis of this type exhibits no membrane, and nothing but bacteriological examination could establish a proper diagnosis.

It is important to remember that the diphtheritic bacilli may remain in the tonsil for a considerable length of time, even as long as five weeks.

We have here, therefore, a class of case in which contagion may spread, and in which the diagnosis from mere clinical signs is next to impossible.

The association of several micro-organisms in a cultivation—such a medium as is offered by the tonsillar crypts—is common, and extremely interesting.

Roux and Versin have stated that the combination of streptococcus and Loeffler's bacillus increases the virulence of the latter, and a harmless diphtheritic bacillus may be rendered virulent by associating it with the erysipelas streptococcus, and the bacillo-streptococcic form of diphtheria is one of the gravest as to prognosis. Of ten such cases recorded by Martin, eight were fatal, and Troje in twenty-nine autopsies of diphtheria found the streptococcus in all cases in the throat, twenty times in the lungs, and thirteen times in the blood and spleen.

It has been proved that the chemical products of one kind of micro-organism, when injected into an animal, render it very liable to invasion by the same, and perhaps by other organisms.

The common presence of the Loeffler bacillus in the mouth may perhaps explain why certain forms of apparent cryptic tonsillitis in which streptococci predominate may become diphtheritic ("engrafted diphtheria").

Perhaps the development of the lower micro-organisms has stimulated the quiescent Loeffler bacillus to development.

I have purposely avoided discussion of the "pseudo-bacillus," which, though itself a harmless organism, is thought by some to be only an attenuated form of the true Loeffler bacillus, capable under certain as yet unknown conditions of becoming virulent.

The time has not yet arrived when we may classify different forms of throat inflammations upon a bacteriological basis, yet it will come, and I believe we shall abolish such terms as "croupous," "diphtheritic," "diphtheroid," "membranous," etc. But it is possible to make an attempt, as Bulloche has done, in the following manner.

1. *Staphylococcal Throat (Angina).*—False membranes soft, slightly adherent, and not dissociated in water, and they contain a considerable quantity of fibrin. It is of a grey-yellow colour. There is fever, pain in the throat, swelling of sub-maxillary glands and enlargement of the tonsils. The disease runs a sharp course, and cure occurs in less than six days.

All cases of purely staphylococcus throat hitherto described have followed this type. They resemble somewhat mild forms of diphtheria, yet culture experiments do not exhibit the presence of Loeffler's bacillus. Commonly the staphylococcus is associated with the streptococcus. It is to the latter that are most probably due the suppurations of distal organs. The suppurative lesions produced by staphylococci, in general, have a tendency to remain localized; not so those of streptococcal origin.

2. *Streptococcal Throat.*—This is a very common form. Bulloche observed six cases of pseudo-membranous angina due entirely to streptococci. There is a sudden, sharp fever, with or without an initial rigor. But it may come on insidiously and slowly with only dysphagia. False membranes appear on a tonsil, then invade the palatine pillars and uvula, so as to cover them like the finger of a glove, a sign supposed formerly to be distinctive of diphtheria. The mild form shows white or whitish-grey membranes, adherent, the mucous membrane bleeding on their removal; they often have an inflammatory zone round them, very marked, and the throat may be very red as in scarlatinal angina. These membranes have very little disposition to spread, but recur after removal. There is enlargement of the sub-maxillary glands. The general condition remains fairly good. These cases greatly resemble moderately severe forms of diphtheria, the membrane being, however, rather less elastic and more friable. The subjacent mucous membrane is, however, always much more inflamed than in diphtheria.

Barbier indeed relies upon the following points of diagnosis: suddenness of onset, during previous perfect health, rapid elevation of temperature, severity of sore throat, and red and inflamed pharynx. In the *severe* forms of the disorder, the exudation is grey and sanious; there is coryza with sero-sanguinolent flow, swelling of the neck and face, and great infiltration of the peri-glandular cellular tissue, fœtid breath, rapidly increasing prostration, high temperature, and constant albuminuria. Death may occur at the end of four or five days. Croup never occurs in this disorder.

This form resembles infectious diphtheria due to the association of Loeffler's bacillus and streptococcus, but possesses this important difference, that infectious diphtheria, *z.e.*, the combination of Loeffler's bacillus with streptococcus, is invariably fatal, while even grave forms of streptococcal throat are susceptible of cure. In this form of sore throat, Loeffler's bacilli are invariably absent, and cultures carefully made reveal only streptococci.

Sometimes, in severe forms of the disorder, the exudation is extremely adherent, and not very thick. They, moreover, appear to be depressed in the mucous membrane surrounding them.

Autopsy shows the mucous membrane to be filled with pus—properly speaking, there is no false membrane. The mucous membrane is filled with leucocytes and streptococci, and there is no fibrin. Broncho-pneumonia may carry off the patient.

Erythema is frequently seen, but only in the grave forms; sometimes red miliary eruption, more or less confluent upon the lower limbs and abdomen especially, sometimes red or scarlatiniform, of more or less extensive areas, with intervals of healthy skin, at other times along with urticarial papules.

We have before us the difficulty of diagnosing whether we have to deal with an angina with erythema, or with a scarlatina with pseudo-membranous throat.

Bulloche insists upon two points in these streptococcal throats, *viz.* that they are not contagious (supported by clinical experiences), and have not yet been observed to be followed by paralysis during convalescence. The placing of such children in wards where diphtheria patients are placed, therefore, subjects them to the danger of contracting true diphtheria of a very virulent and fatal type.

3. *Pneumococcal Throat*.—Rendu, Netter, and Cornil have studied this form, but Jaccoud and Ménétrier have given the first demonstration of pneumococci in the pharyngeal false membranes, almost to the exclusion of other organisms. The case they recorded was that of a young man of nineteen, who was suddenly attacked with rigors, pain in the throat, and very pronounced exhaustion. Next day considerable glandular enlargement followed, a continuous fever, and grave general condition. There was false membrane upon the right tonsil, white and resistant, and consisting of fibrinous network, infiltrated with migratory cells. The left tonsil and uvula then became invaded, and œdema of the neck followed. At the end of a week the false membranes ceased to be produced, and cure followed.

In this case there was entire absence of the Loeffler bacillus, and only the Fraenkel-Talamon pneumococcus was present.

In Netter's case of angina, followed by pseudo-membranous angina, only pneumococci were present in the laryngeal exudate.

Pneumonia may accompany or follow this form of sore throat—(Rendu). It has been abundantly proved that the pneumococcus may produce suppurations in various parts of the body, pleuritis, meningitis, ulcerative endocarditis, otitis, etc., in patients who have never at any time suffered from pneumonia.

4. *Roux and Yersin's Coccal Angina (Angina à Coccus).*—Slightly developed false membranes are present on the tonsils or pharynx ; there is constant glandular enlargement, but rarely very great. The false membranes are white, elastic, resistant, and have a marked tendency to invade the lips. They are reproduced during several days, and in all respects resemble true diphtheria clinically.

In the slight form there is only a slight elevation of temperature : the membranes are easily detached, and have but slight tendency to recurrence.

In other and severe cases there is extreme prostration, albuminuria and considerable rise of temperature. They have, according to Martin, a great tendency to recurrence, and he saw in one child five attacks, in none of which was Loeffler's bacillus found, but only Roux's cocci. They may be complicated with pseudo-membranous laryngitis. In such cases, though Loeffler's bacillus has been absent during the first examination, it has been found later, probably less due to secondary infection by the specific bacillus than to association of Loeffler's bacillus with Roux's cocci.

These organisms are also found associated with staphylococci and streptococci. Their exact significance is yet less known than that of other organisms.

In some of Koplik's cases of lacunar tonsillitis or diphtheria only Roux's cocci are mentioned as being present.

In all these forms we have throat symptoms which would unhesitatingly be pronounced diphtheritic from a clinical point of view. Yet they are not diphtheria, for they are not all contagious, and though true diphtheria may be engrafted upon them, as it may upon any non-specific inflammation, this is merely accidental. There is only one symptom of diphtheria that appears to be absent from these forms, viz., paralysis, and it is yet an open question whether this may not occur in cases other than true diphtheria. It has been recorded after mumps (Joffroy), and has been produced experimentally in animals inoculated with the streptococcus (Manfredi and Traversa). Many clinicians have been of opinion that it may occur after non-diphtheritic inflammations.

What we require in all cases is a bacteriological examination, so that experience will enable us to extend our observations and also to classify these various anginas according to a bacteriological terminology, for certainly, though they clinically resemble diphtheria, they are not diphtheria.

I have not dwelt upon the so-called "diphtheritic" sore throat of scarlatina, which appears to present itself under two forms—first, that occurring during the period of eruption, which although presenting white-grey thick, adherent membranes, appears to be only streptococcal, or at least not to contain Loeffler's bacillus, as is proved by culture experiments ; and second, a late form occurring during convalescence, or later, which are truly diphtheritic, and from the association of Loeffler's bacillus with streptococci, present a particularly grave prognosis.

It appears to me that the time is not far distant when we shall classify the inflammatory conditions of the tonsils and throat upon a bacteriological,

and not a clinical or anatomical basis, and that we shall cease to speak of croupous and diphtheritic, or pseudo-membranous throats. Clinical experience demonstrates how great may be our errors of diagnosis and prognosis in these obscure cases, which form a large proportion of those which come under our care. These errors would be reduced to a minimum if we, in these very common cases, systematically practised bacteriological diagnosis, which must include cultures, and should also, if we were not controlled by a body of old women, male and female, include inoculation experiments upon animals.

I have not spoken of "contagion" in lacunar or exudative tonsillitis. There is a wide-spread opinion that this may occur. A great number of such cases have been recorded. Thus epidemics have occurred in France and in England. Such have often been seen side by side with epidemics of scarlatina and measles, but of its spread from one individual to another the proof is not absolute, though it is certainly probable. Thus Jacquemart in 1888 recorded a girl with quinsy who contaminated successively in ten days three patients under treatment for other affections, all being simply pultaceous tonsillitis. Tissier (1888) reported six cases following upon a case of tonsillitis. Descoings recorded thirty cases of contagion. Jeanselme and Richardière, Sallard, Boucsein and others have recorded cases of apparently direct contagion. Caesar Beck said he followed its progress from street to street and from house to house.

Sendtner treated an epidemic among the servants of the Breslau Hospital which followed upon four fatal cases of puerperal septicaemia. It has happened frequently in hospitals—certain wards, or even one particular bed, being apparently vehicles of contagion. Such has happened frequently in my experience at the Throat Hospital. It never appears to attack, however, large masses of people simultaneously, but rather a number of persons living under the same roof, or the same conditions, or several members of a family, and the thought must strike us that it is often less a question of contagion from one individual to another than several persons living under a common cause, most frequently insanitary surroundings. It is not difficult to imagine that such conditions, having lowered the body resistance, give opportunity for active development of micro-organisms in the tonsillar lacunae, which might otherwise not have invaded the system. Such throats are septic, and probably streptococcal or staphylococcal.

I shall have badly carried out my intentions if I have not succeeded in impressing you with the following conclusions: Starting with the assumption that there is no true diphtheria without *Loëfiker's bacillus*, there is not necessarily diphtheria because there is a membrane or pseudo-membrane. Such are in no sense characteristic of diphtheria, and may be produced by a variety of causes—injury from caustics, streptococci, etc. Lacunar tonsillitis is not lacunar diphtheria. There is a lacunar tonsillitis and a lacunar diphtheria, but they are not synonymous terms, though they present much the same clinical appearance. Whether the local appearances are of fibrin (or croupous), or of adherent membrane (or diphtheritic), does not make the condition either croupous or diphtheritic. It merely marks the extent of local injury and intensity of the process.

"Follicular," or acute cryptic tonsillitis, which is the most interesting form, is not follicular at all. It is a simple or desquamative infection, due to strepto-, staphylo-, or pneumococci. It is also possibly contagious.

The pathological enlargements of the tonsil, in which a chronic process of catarrh is almost invariably present in the lacunæ or crypts, form not only the best culture media for a large number of micro-organisms, but give them the opportunity of invading and infecting the system. Whether micro-organisms reach the tonsil by the circulation, or, what is more probable in the vast majority of cases, through the mouth, chronically enlarged or catarrhal tonsils are a source of danger to the individual, forming one ready mode of access to the general system for micro-organisms. The treatment of such cases is obvious.

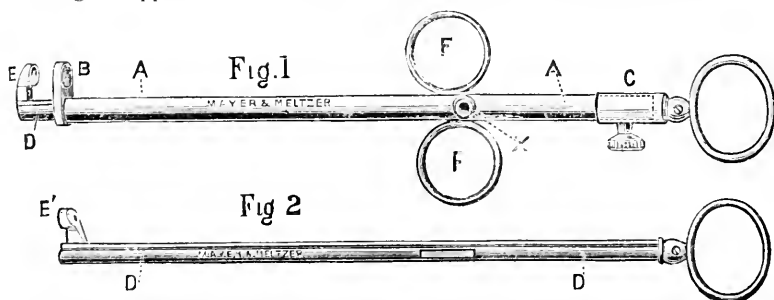
The clinical appearances alone allow us so little ground for diagnosis of simple tonsillitis from diphtheria that, in the absence of bacteriological diagnosis, we shall be wise to isolate such patients from the first, until the course of the disease renders its nature positive. This bacteriological examination is the more necessary, since the placing of patients with streptococcal pseudo-membranous throats in wards where there is diphtheria may convert a simple case into a fatal one.

Bacteriology should be the basis of the diagnosis, and no hospital or institution is complete without such an adjunct as a properly equipped laboratory. Fortunately, even if the diagnosis be in doubt, the treatment is pretty much the same for all these cases, viz., antiseptics.

A NEW TONSIL PUNCH.

By Dr. A. B. KELLY, B.Sc., M.B. Glas.

THE instrument consists essentially of a grooved body and a central sliding part, the latter carrying a punch which works into a bolster fixed on the former. To allow of more delicate manipulation two punches—facing in opposite directions and each with its own central bar—have



been made. For convenience they may be termed respectively the pulling and pushing punch. The body of the instrument is adapted for either. Fig. 1 represents the pulling punch complete: A A is the body, at one end of which the bolster (B) is fixed, while over the other the

thumb-piece (c) is held by a screw ; d is the central sliding bar carrying the punch (e), and into which the finger rings (f f) are screwed. Fig. 2 represents the sliding part of the pushing punch. To change the pulling to the pushing punch the operator must remove c, unscrew f f, and withdraw d ; then slide d' d' into A A, and screw f f into the bosses (x), one of which is on each side of the body. The pushing punch is now complete. The changing of the punches may be effected in half a minute. The cases in which the tonsil punch may be used with advantage are those unsuitable for tonsillotomy, and in which hitherto the galvano-cautery has been indicated. They are as follows :—1. When the tonsils are enlarged antero-posteriorly, and project but slightly, if at all, beyond the pillars of the fauces. It is naturally assumed here, as also in the cases mentioned below, that the condition of the gland is giving rise to symptoms which call for its reduction—an enlargement *per se* does not justify interference. 2. When the anterior pillar of the fauces is stretched over the tonsil and there is danger of wounding it with the tonsillotome. 3. When, after tonsillotomy, the remaining portion of the gland is the seat of frequently recurring attacks of inflammation. 4. When there is chronic lacunar tonsillitis, and the gland is not sufficiently enlarged for tonsillotomy, the punch may be used alone, or together with dissection. 5. When tonsillotomy is indicated, but the patient is an adult and excessively nervous, the punch may then be used with the assurance that the local anaesthesia induced by cocaine will render its application absolutely painless. In all the above cases the tonsil punch will produce the desired result more rapidly, and with less subsequent pain and liability to severe inflammatory reaction than the galvano-cautery. The instrument is made by Messrs. Mayer and Meltzer, of 71, Great Portland Street, W.

CONGRESS MEETINGS.

THE BRITISH LARYNGOLOGICAL AND RHINOLOGICAL ASSOCIATION.

Eighteenth General Meeting, held July 13th, 1894.

President—Dr. J. MACINTYRE, Glasgow, *Chairman*.

Vice-President—Dr. NORRIS WOLFENDEN, *Vice-Chairman*.

Thirty-five Fellows and Visitors were present.

The minutes of the previous meeting were read and confirmed.

The following gentlemen were elected Fellows of the Association :—

FREDERICK SPICER, M.D., London.

HOLBROOK CURTIS, M.D., New York.

CLAUDE WOAKES, M.R.C.S., London.

ROBERT FULLERTON, M.D., Glasgow.

Dr. MACINTYRE proposed : "That, in addition to the ordinary meetings, special " evenings be chosen for holding clinical meetings." This was seconded by Mr. GEO. STOKER, and carried unanimously.

Mr. GEO. STOKER proposed : "That the word 'Otological' be added to the " title of the Association." Seconded by Dr. PEGLER.

Mr. MAYO COLLIER proposed the following amendment : "That the name be " not changed, but that cases of Otology having a bearing upon Rhinology be " accepted for discussion" ; this not finding a seconder—

Dr. MILLIGAN proposed : "That the question of formation of an Otological " Section being of such importance and general interest to the Fellows of this " Association, the proposal be referred to a specially elected committee to consider " and report." This was seconded by Dr. HILLIS and carried.

The following Fellows announced their intention of presenting electric lamps to the Association : Dr. WHISTLER, Dr. MACINTYRE, Dr. WOLFENDEN, Dr. SANDFORD, Dr. COALL, and Mr. LENNIX BROWNE.

Dr. EDWARD LAW. *A Doubtful Case of Chronic Laryngeal Disease in a Diabetic Subject.*

Mr. W. W., aged forty-eight, consulted me on March 24th, 1894, complaining of "hoarseness and the occasional expectoration of a little muco-purulent secretion, tinged with blood, especially in the morning after hawking. A slight hacking cough and shortness of breath on exertion."

Two years ago last Christmas the patient suffered from influenza, associated with acute laryngitis, since which attacks he has frequently had fits of coughing on entering a smoke-room or similar atmospheres.

He dates his present trouble from November 29th of last year, when he was seized with a severe paroxysm of coughing whilst travelling by train, and just recovering from a bad cold. He has had glycosuria for the last twelve years, and he is also gouty. There is no pain or discomfort on swallowing, and no history of syphilis or hereditary malignant disease and his weight has not altered during the last eight years.

On examination I found general congestion of the naso-pharynx. The epiglottis, ary-epiglottic folds and ventricular bands were much swollen, very hyperæmic, and slightly œdematous. It was impossible to obtain a good view of the vocal cords, which were, however, red, thickened and fleshy in appearance, with apparently free movement.

I prescribed sedative inhalations, insufflations and pastilles ; rest, particularly of the voice ; a simple diet, with avoidance of alcohol and tobacco.

The local condition very rapidly improved, and on April 2nd all that remained was redness of the left vocal cord, which was also somewhat swollen, and presented an eroded appearance on the upper surface of the middle third. A day or two later he was seen by my friend Dr. Whistler, who verified my observations.

On April 6th he returned home to Yorkshire, and I did not see him again until April 19th, when I found the left vocal cord red and fleshy-looking, with a somewhat ragged and granular appearance ; but after carefully washing away a little muco-purulent secretion I could not detect

any distinct ulceration, only, as it were, an abrasion. I saw for the first time, at this examination, a small nodule situated immediately below the anterior commissure of the cords, and growing from the tracheal wall. This condition, with slight congestive variations, has somewhat improved, especially whilst residing at his own home during the last three weeks. He has taken from fifteen to sixty grains of iodide of potassium daily for five weeks, and been treated locally with morphia, iodoform and chloride of zinc.

I should like the Fellows of this Society to kindly examine this patient and to assist me in determining whether we have to deal with a chronic inflammatory affection or an intrinsic malignant disease of the larynx. If the latter, is any operative procedure advisable in a diabetic subject?

Mr. LENNOX BROWNE: I think it is very difficult to say, seeing a case of this sort for the first time, whether it is malignant or not, and one naturally would pay great deference to the opinion formed by several gentlemen who have had the opportunity of seeing it for many months, but I must confess on first sight I should not have much fear that the condition of the larynx under discussion is malignant. I heard that the patient had had influenza. It looked to me like a case such as one sees in laryngitis, occurring after influenza, and in spite of the fact that there is no history of syphilis I would not eliminate the possibility of this dyscrasia in the case, especially as the patient since he has had iodide of potassium has improved. I should, before I decided on splitting his larynx, be inclined to try if mercury, either internally or by inunction, or, better still, a properly regulated course at Aix-la-Chapelle, would be effective. Not until then could one say that the ground was clear for a definite diagnosis either for or against malignancy. That is simply an impression on a cursory glance of the patient, and I do not ask that it should be accepted in any other sense.

Dr. MIDDLEMASS HUNT: In my opinion this case is undoubtedly obscure, but taking into consideration the history of the disease and the result of the treatment, I think this is one of the most appropriate cases for splitting the larynx and clearing out all the parts. A case under my own care was that of a man, aged fifty-five years, who had a thickened nodule of the posterior half of one cord—movement was perfectly free and his voice was normal. How long the condition had existed before I saw him I do not know. It continued for some four months. At the end of four months, not on my advice, but on the advice of a London specialist, he consented to have the larynx split. Personally, I did not think there was proof of its malignity. He got very fat and quite well under my hands, but still the disease did not disappear. Now what was the result? The result was that when the specimen was submitted to two pathologists, one declared that it was the earliest case of malignant disease that he had ever seen, and the other said there could be no doubt about its being malignant. I think this case is similar, and that one would be justified in splitting the larynx and clearing it out.

Dr. DUNDAS GRANT: I have nothing to say except that I share with Dr. Law the responsibility of entertaining a doubt about this case. I think it is a case which is perfectly obscure. The absolute mobility of

the vocal cord and the certain absence of any progress in a malignant direction since we saw him renders it very justifiable to hold the opinion that it is not malignant. At the same time there is the age of the patient, which is very suggestive, and the fact that the disease is certainly not disappearing with the rapidity that a syphilitic lesion generally does under the active antisymphilitic treatment this has been exposed to. I confess I am utterly unable to give an opinion.

[Dr. Grant was under the impression that a mercurial course of treatment had been carried out.]

Dr. WHISTLER: In reviewing the history of this case I think it important to note that the commencement of the affection does not appear to have actually dated from November, 1893. On the contrary, there is a distinct statement on the part of the patient that he has been subject to recurring attacks of laryngitis, with more or less persistent hoarseness, soreness, and cough, for two or three years past. From these intermittent attacks he appears to have made fairly good recoveries, until the onset of the present affection, which supervened about eight months since upon an attack of influenza. The laryngeal inflammation has since then undoubtedly assumed a more aggravated form, yet, while the hoarseness and irritation have been more markedly persistent, the general type of the affection does not appear to have varied much throughout the whole course. Notwithstanding its long duration, the laryngoscopic appearances, as already described by Dr. Law, offered no characteristic features of either malignant, syphilitic, or tubercular disease when I saw the patient first, with Dr. Law, last April. At that time, and since then, the affection has been strictly limited to the vocal cords, excepting the small nodule on the tracheal wall, just below the anterior commissure, which is now so reduced in size that it is hardly discernible at times. That the left cord should have been the one most intensely affected is certainly suspicious, but the right cord has always been highly congested as well; so that the disease has not been strictly unilateral, and there is now much less thickening of the left cord. I have never seen any ulceration or distinct outgrowth on either cord. There has been so far no sign of extension to the surrounding parts, no infiltration of neighbouring tissues, and no impaired movement of the vocal cords; with this, some surface congestion over the ventricular bands, and the arytenoid fold.

Of course, such appearances may be associated with syphilis, but to my mind they are not typical of this disease. There was no history of syphilis, nor were there any associated syphilitic lesions. The patient said that some years ago, after attending a confinement case, he had had an inflamed finger, which took some time to get well, and which at the time he had thought might be due to syphilitic infection. This, however, had never been followed by any general symptoms. Owing to this information Dr. Law and I thought it would be advisable to give him the benefit of the doubt, and administer iodide of potassium. As the more recent improvement that has taken place has been ascribed to this treatment, I wish to point out, and lay stress upon the fact, that the iodide of potassium, on the contrary, aggravated the trouble at the time

to such a degree that it had to be discontinued, and that the later amendment that has taken place has followed upon the local treatment, together with more complete rest.

In considering the stubbornness of the affection I would call attention to the fact that the patient is gouty, and has for some years had glycosuria. In addition to this his larynx has been subjected to constant irritation and much strain. A physician, in busy practice, he has been exposed to all weathers, and has not been able to rest his voice. He has been subject to occasional bronchial attacks, and has now chronic nasopharyngeal catarrh.

I have had the case under observation, in association with Dr. Law and Dr. Dundas Grant, for nearly four months now, and though progress has been slow, every change that has taken place of late has been in the direction of progressive improvement. The possibility of the laryngitis being malignant has been an anxious question, but I do not feel that so far the signs indicate anything more definite than those of protracted inflammation. All I would say is that from the repeated examinations I have made, and watching the course of the disease, I am now inclined to take a more hopeful view of it than I at one time entertained.

THE PRESIDENT: I am sure, gentlemen, we are very much indebted to Dr. Law for bringing this interesting case before us. No consultation in our rooms could be as satisfactory as this method of bringing a case before so many men engaged in special practice. As I remarked when Mr. Mayo Collier brought similar cases before us at the last meeting, any one of us might meet a similar case in daily practice, and it is precisely for this reason that we value them when brought before the Association.

Dr. LAW, in reply, said that he still considered the diagnosis very uncertain. The negative results of the administrations of iodide of potassium for five weeks, and the history of the case had almost excluded, in his mind, the possibility of syphilis. At the same time he was quite willing to try a further course of antisypilitic remedies, including mercury, and he hoped on some future occasion to have the opportunity of again bringing the patient before the members.

MR. MAYO COLLIER. *A Case of Polypi of the Frontal Sinus.*

The Fellows will perhaps remember the frontal sinus case I showed last meeting; as subsequent events have proved, it was a case of polypus of the frontal sinus. The patient is not here, but I have brought the specimen, and I think you will consider it an interesting one. The case having been under my care for seven months with a discharging sinus, I determined to explore the frontal sinus from the front and look into the facts of the case. This is a portion of the bone that came into the trephine, and you can see a polypus hanging to it. The whole of the interior of the frontal sinus was filled with these polypi, which blocked it completely. I cleared the whole of the interior out and bathed it with chloride of zinc, forty grains to the ounce. I should like to illustrate to you a method of drainage I adopted in this case. Very great difficulty has always been experienced in draining the frontal sinus as well as the

auxiliary sinuses, and many different tubes have been invented to this end.

The following simple procedure is the method I adopted : I passed a piece of thick drainage tube through the infundibulum into the nose large enough to fit fairly tightly. The difficulty came in how was one to get the fluid through that drainage into the nose, but it suggested itself to me that by taking two ends of the drainage tube and stretching it during each cleansing you could get perfect drainage, you could regulate the size of your drainage tube by this method according to your requirements, and could wash out the frontal sinus completely as often as you wished. This acted admirably and the case has done very well indeed ; the tube has been removed, and so far the case is cured.

Dr. DUNDAS GRANT : I think Mr. Mayo Collier is to be congratulated on his cases. It is an instructive lesson as to the advisability of opening up the frontal sinus from the front when it does not yield to treatment through the nose. Even supposing there had not been such a condition discovered, the patient would not have been any worse.

The PRESIDENT : Our thanks are also due to Mr. Mayo Collier for bringing this case before the Association, and for the remarks he has made. His very simple but ingenious method of draining is well worth attention. Sometimes when we have opened from the frontal sinus, and wish to drain into the nasal cavity, it is difficult to get the parts thoroughly washed out. This method seems exceedingly practicable.

Dr. DUNDAS GRANT. *Fibroma of the Vocal Cord.*

Miss Van —, a young actress and singer, came to me one day last month, on the recommendation of Dr. Milligan, and Dr. Harris, of Manchester, to whom she had been referred by Dr. Macintyre, of Glasgow. She complained of hoarseness, which for eight months had rendered her incapable of singing. In spite of this she continued her dramatic exertions till the completion of the tour and her return to her home in London. Hence the reason of her coming into my hands for an operation, which any of the skilful *confrères* I have named could have performed for her with perfect facility had her business permitted of it.

For deep tones her utterance was strong though rough, but she was quite unable to emit high tones in the thick, or any at all in the thin register. On laryngoscopic examination, I observed a soft pedunculated semi-translucent growth, of the size of a large pin's head, on the edge of the right vocal cord at the junction of the anterior and middle thirds. Both cords were considerably congested, and therefore, before attempting removal of the growth, I thought it advisable that she should rest her voice for a few days, and apply cold by means of Leiter's coil for several hours a day.

Shortly after in June, in presence of a number of students and visitors, I removed the growth without the slightest difficulty by means of the safety endo-laryngeal forceps, which I have already shown here on several occasions.

The growth was an œdematous fibroma or polypus of the vocal cord, and when compressed under a cover glass and stained appeared to be

made up of mucous tissue, encased in a sac of flattened prickle-celled epithelium. Her voice is now comparatively clear, and she can utter "thin" register tones without difficulty. This is the smallest growth I have ever removed, but Dr. Macintyre has removed a similar one with my instrument.

Dr. HOLBROOK CURTIS (New York) said: In connection with this case I would like to call attention to the fact that many singers are subject to minute papillomata and fibromata upon their cords, not always early recognized. I have published a monograph upon this subject, in which attention was called to the fact that, in a majority of cases, the growth had been observed in those persons who in singing made use of the so-called "stroke of the glottis." This stroke cannot be made without bringing the cords into contact one with the other, producing by attrition the nodules so frequently seen between the middle and anterior third of the cords. An experience of very many cases has made me positive in my assertion that the true treatment for these conditions, when seen in their initial stage, is not by means of the curette, the forceps, or the cautery, but by exercises of those intrinsic muscles of the larynx which cause tension of the cords. (Dr. Curtis then showed his method of strengthening the thyro-arytenoids by tones made *dans le masque* or focussed in the face, the breathing being inferior costal or diaphragmatic, with the upper ribs maintained in elevation, that the trachea be drawn downward and the thyroid depressed.) In practising this exercise the uvula is lowered, and the tone in the cords of singers becomes darkened. In this exercise for the reduction of singers' nodes, the word "maw" (or "ma") is used, the m-tone being made with the mouth, closed at first, in order to insure the complete relaxation of all the pharyngeal muscles, and finally the tone allowed to break upon the lips as loudly as possible, without the contraction of a single muscle in the neck or pharynx. This exercise alone has restored in a few days cords supposed to have been permanently injured by singers' nodes. The theory is that in this pose the cords are in the state of greatest possible tension. They vibrate without a point of contact, and the membrane receives a massage, whereby the thickening which has been caused by attrition becomes reduced. I have the endorsement of very many of our most distinguished singers that this method of laryngeal gymnastics is productive of great strength and brilliancy of tone, the constant practice of it doing away entirely with the fatigue produced by overwork and so-called relaxation of the cords. I would like very much to go more elaborately into the detail of this method of treatment, but will not take the time of the Society further than to call attention to what I consider a new method of dealing with singers' nodules. The young lady exhibited informs me that she is a singer, and has always used the pernicious *coup de glotte* (or stroke of the glottis). It is safe to predict that, if she continues, she will have a recurrence of her disability, and the case appears to me a good one for testing the treatment I have ventured to detail. I am delighted to have had the opportunity of seeing the new guarded forceps of Dr. Grant, which are most ingenious, and I shall not fail to adopt them.

Dr. BARK: I should like to say I have had two similar cases, and in

both cases the patients suffered from these singers' nodules, which were removed by Dr. Grant's forceps, and in both cases the voices have perfectly recovered.

The PRESIDENT: I am sure, gentlemen, you will agree with me in saying that we are exceedingly pleased to see Dr. Curtis here, and to congratulate him, on his first appearance at the Association, upon the pleasant remarks and useful illustrations which he has given us. I might be allowed to say a word about the case of fibroma of the vocal cords, because the patient was first seen by me in Glasgow. She had an engagement at one of the theatres and was very ill, but she refused to go off duty. It was impossible for me to do anything for her, as she had to leave Glasgow in a day or two, so I sent her to Dr. Milligan, and he sent her to Dr. Grant before the necessary rest and treatment could be obtained. My impression at first seeing her was that the nostrils and pharynx ought to be put into a healthier condition. Knowing what we now do about the relationship between catarrhal condition of the nose and throat and neoplasms of the vocal cords, I think it only right that this should be done. In all probability a further improvement would be obtained.

Dr. DUNDAS GRANT. *Disease of the Frontal Sinus.*

John M. is the patient whom I brought before the Association on the occasion on which we engaged in the discussion on disease of the frontal sinus, so ably introduced by Mr. Mayo Collier.

The disease arose from influenza, and was characterized by a chronic purulent discharge from the left nostril, the factor of which was perceived by the patient, and was accompanied by pain in the left frontal region. Suppuration in the antrum was excluded by the results of transillumination and of exploratory irrigation.

Subsequent to that occasion I opened the frontal sinus just below the supra-orbital ridge, the presence of pus being speedily demonstrated. Considerable erythema supervened, but disappeared on the substitution of boracic dressing for the alembroth gauze, which, from some idiosyncrasy was not well borne by the patient. Free antiseptic irrigation was practised, and a drainage tube was passed down to the nose in the following way:—An Eustachian catheter was introduced into the frontal sinus, and its beak was easily passed downwards into the upper orifice of the infundibulum. Through this a long piece of soft pewter wire was pushed till it reached the inferior meatus, and was easily pulled out through the anterior naris. An india-rubber drainage tube was slipped over the upper end of the pewter wire, and slid down it till it also reached the floor of the nose. It was retained for several days, but caused considerable irritation, and, in view of the obvious patency of the passage, I did not think it necessary to continue its use. In spite of thorough irrigation, the discharge, though no longer fetid, failed to diminish to any great extent until I removed the anterior portion of the middle turbinated body by means of strong cutting forceps. The improvement was then very considerable, but cure was not complete. Under local treatment by means of sublimate lotions, peroxide of hydrogen, insufflations of iodoform, and other antiseptic measures, frequent diminutions of the

discharge took place, but, unfortunately, for no long period. I determined, therefore, to make a large opening, explore the sinus completely, and try more radical treatment for any condition I might find.

On the 10th of June ether was administered; the old line of incision along the lower border of the supra-orbital ridge was followed, but was carried further in both directions. There was considerable hæmorrhage, and after it was stopped the periosteum was separated and drawn upwards and downwards. The old opening was enlarged by means of a gouge and mallet, and, still further, by means of Hoffmann's gouge forceps, till the interior of the sinus could be freely inspected and the little finger could be introduced. The lining wall was covered with granulations, which were freely scraped. The opening was plugged with iodoform gauze, and a dressing of alembroth gauze over iodoform was applied. The experience of the former operation was again recalled, and very troublesome erythema, amounting almost to erysipelas, occurred. This occasioned such discomfort that when the plug was removed its replacement was too painful to permit of its being satisfactorily carried out. Boracic dressing was substituted, and the erythema diminished, but the aperture closed almost completely. When this took place the discharge into the nose became again more copious, as far as the patient could judge by his feelings. The introduction of even a probe caused most intense pain, so nitrous oxide was administered, when the wound was forced open and two large drainage tubes were introduced. The discharge became less, and the patient was considerably more comfortable.

Disease of the Sphenoidal Sinus.

Miss D. came under my care, recommended to me by Dr. Godfrey some years ago on account of an obstruction in her left nostril, which caused her considerable local discomfort, and a muco-purulent discharge which had not yielded to treatment by ordinary methods of douching. In addition to this, she was greatly troubled by headaches of very great severity, more marked on the left side of her head. On examination I found what appeared to be a condition of myxomatous enlargement of the middle turbinated body, which I anticipated I should have no trouble in removing. I passed a snare round it as far as I could, and removed a large piece of myxomatous tissue.

Again and again it recurred, and each time I removed it and applied the galvano-cautery. The headache was completely relieved by the operation, but returned with the redevelopment of the growth. Suppuration was present to some extent in the maxillary sinus, and, as I thought that the discharge of pus from that region might be one cause at least of the trouble in the middle meatus, I had it tapped through the alveolus and irrigated for a considerable time. This also gave considerable relief, but there was always a residuum of new growth at the posterior part of the middle turbinated body which I was unable to eradicate. A few months ago it happened that while the nostril was being irrigated a large mass of granulation tissue came away, attached to a small plate of bone, which, on examination, could be nothing else than the plate of bone forming the anterior wall of the sphenoidal sinus.

Unfortunately, this was thrown away before I could make a more detailed examination of it. I then found that it was quite easy to pass a probe or the point of a small syringe into the sphenoidal sinus, and by means of the syringe to force out a small pellet of mucus, the removal of which gave the patient the greatest feeling of relief. At present there is to be seen at the upper and back part of the left nares a mass of granulation tissue with a little drop of muco-pus lying upon it. This appears to grow from the anterior aspect of the body of the sphenoid. I have scraped it away on several occasions by means of a sharp spoon, and its regrowth each time becomes less marked and less rapid, and the discharge is diminishing very considerably, while the patient experiences a degree of comfort which she has not known for many years.

The moral suggested by the case seems to me to be this, that when one finds a growth apparently arising from the middle turbinated body, but which it seems difficult or impossible to surround by means of a snare applied as it would be to the middle turbinated body, we have to suspect that the growth is situated on the anterior aspect of the body of the sphenoid. At the same time the benefit derived from the removal of the enlargement of the middle turbinal, even when the disease is situated in the sphenoidal sinus, is explicable by the greater freedom for the escape of the discharge from the latter. It will be remembered that the orifice of the sphenoidal sinus is situated behind and somewhat above the posterior extremity of the middle turbinated body, and when the latter is enlarged, and when, at the same time, there are granulations growing from the front of the sphenoidal sinus, it is obvious that the orifice of the sinus may easily get blocked up, but that the removal of a swelling of the turbinated body may render the exit for such discharges considerably more easy.

Dr. DUNDAS GRANT. *Disease of Sphenoidal Sinus.*

Mrs. C. came to me in June, 1893, complaining of pressure across the root of the nose and frontal sinus, alternating between one side and the other, for a period of two months, causing the greatest misery, and so much depression that a confidential inquiry was conveyed to me from her husband as to whether her brain was affected. She had no obvious discharge from the nose, and apparently no defect of smell. The pain was most severe when she bent her head forwards; it was worse before her menses, which were excessive. She suffered from slight giddiness and globus. On examination of her nose the only obvious abnormality was a tumidity of both middle turbinated bodies. After the application of cocaine she experienced very considerable relief. I ordered bromide of potassium and valerian internally, and eucalyptus ointment for local application. At the same time I recommended that she should consult a dentist with regard to her teeth, which had previously given her a considerable amount of trouble. The swelling of the middle turbinated bodies was reduced by means of galvano-caustic punctures. By passing a probe between the middle turbinal and the septum I could detect bare bone below the orifice of the sphenoidal sinus. By means of Lichtwitz's sphenoidal canula a little muco-pus could be syringed out

of the sinus with great relief to the patient. To take the pressure off this region, and to allow free escape for any discharges, I removed the swollen posterior portions of the middle turbinals. After the subsidence of the disturbance resulting from the operation considerable diminution of the headache ensued.

DR. DUNDAS GRANT. Case of Paralysis of the Left Vocal Cord and other parts, associated with Hemiplegia.

John K., aged forty-one, formerly in the army, was referred to me by my colleague, Dr. De Watteville, on account of his deafness, on June 22nd. He complained of a noise, like that of a train, in his right ear, of six months' duration, which had come on suddenly with considerable diminution of hearing power. The left ear had been quite deaf for several years, dating from the occurrence of an attack of paralysis of the left side, which came on suddenly in the night. The affection in the right ear was simple impaction of cerumen, which was easily remedied. On the left side, however, he had well-marked nerve deafness. On further examination he was found to have paralysis of the left half of the palate and face, and of the left vocal cord.

His history was that he had primary syphilis with secondary manifestations twelve years ago. In 1890 he had "a fit" in which he fell down unconscious. He was light-headed for three weeks, and recovered with partial paralysis of his left arm and leg. Eight months later he woke one morning with his face drawn to one side, and with absolute deafness of the left ear, giddiness, inability to walk straight, difficulty in swallowing—solid food stuck in his throat, and liquids caused coughing and regurgitated through his nose.

The paralysis of the vocal cord was evidently quite independent of the hemiplegia. The former was, no doubt, due to a local syphilitic lesion affecting the accessory auditory and facial nerves, whereas the hemiplegia was due to a previous lesion of the right cerebral cortex.

MR MAYO COLLIER: I should like to say a few words about the method of treatment adopted by Dr. Dundas Grant in his frontal sinus case. I have been fortunate enough to have several cases under my care, and this case illustrates exactly what I want to put to you. In those cases where there is a marked bulging of the roof of the orbit I found it was generally useless to open the accumulation in the upper wall of the orbit alone, and to attempt to wash out and treat it from that position. In the first place after six, eight, ten, or twelve months, or two years' treatment you have to re-treat the case. The continual irritation of the soft tissues of the eyelid leads to a nasty thickening of the skin and very likely produces some distortion of the eyelid. I think it is wisest to immediately trephine over the sinus: that is a simple and safe operation, and by it you get a complete examination of the whole of the frontal sinus and direct an efficient drainage. I differ from Dr. Grant in his method of opening the frontal sinus, and I should like to illustrate what I consider to be a better plan. [The speaker then illustrated his method.]

DR. DUNDAS GRANT: My explanation of my choice of procedure is the variation there exists in the extent of the frontal sinus. I did it by

the safest method possible. The abscess did not protrude into the orbit. My incision was made just below the upper orbital margin, and extended in the direction it was safest to go in, and considering there is so much variation, as Mr. Collier has shown us, by means of a number of sections in the size of the frontal sinus, I think that the method I have followed is not altogether to be condemned. It amounts to pretty much the same thing, making a small opening with a gouge and mallet as making it with a trephine. I do not think the difference in the use of the instrument is very important.

I am pleased my case of fibroma of the vocal cord has been the means of bringing out these very interesting remarks of Dr. Curtis. He has spoken to us of what he has seen and thinks, and he does it as an enthusiast, but like many enthusiasts I fancy he focuses his vision upon the one point. I am sure without enthusiasts we shall keep dragging along in the mire for a very long time, and I trust that Dr. Curtis will forgive me for looking at that aspect of the case, and accept my extreme obligation to him for the emphatic way in which he has driven home facts which none of us as reasonable men can refuse to take account of in our future treatment of patients. I had some difficulty in grasping what he meant by singing *dans le masque*, but now I grasp it, and hope to be able to apply it to my cases in the future. I quite agree with Dr. Macintyre that the nasal aspect of the case must be considered in the treatment. Dr. Bark gave us a reminder of what he is doing with my forceps, and I appreciate his allusion to the instrument very greatly. I thank you for your attention to my cases and remarks.

THE PRESIDENT: I think we are all indebted to Dr. Grant for the cases he has brought forward. I should like to say about the one in which there was disease of the sphenoidal sinus that I do not think justice has been done to it on the present occasion. It is a very interesting case and presents many features of interest.

MR. WYATT WINGRAVE. 1. *Probable Malignant Laryngeal Growth.*

E. F., labourer, aged sixty-three, complained of gradually increasing loss of voice of three months' duration. He had neither dysphagia, bleeding, cough, nor dyspnoea, but had lost flesh. His family and personal history were good. Lungs normal. The larynx on inspection presented a large, pale, puckered swelling involving the right ventricular band and cord extending below the glottis. It did not move on phonation. The left ventricular band was somewhat swollen, but the corresponding vocal cord was quite healthy and moved freely. There were no signs of active ulceration. One supra-hyoid gland on right side was swollen and hard.

2. *Probable Tuberculosis of Larynx.*

F. V., female, aged forty-three, complained of gradually increasing loss of voice and pain in the throat of six months' duration. Her chief symptoms were constant cough, but no expectoration, dyspnoea, painful deglutition, night sweats and loss of flesh. Excepting one maternal aunt,

who died of consumption, her family history was good. Personally her only trouble had been a bronchocoele which had existed from childhood. On inspection the vocal cords were clear and mobile, but the epiglottis and both ary-epiglottic folds were deeply infiltrated and ulcerated, and were intensely red.

Dr. ARTHUR SANDFORD read notes of three cases.

1. *Death from Convulsions* six hours after scraping post-nasal adenoids under cocaine. The operation was a simple one performed at ten o'clock. At 3.30 a severe general convulsion occurred, from which the patient recovered, but this was followed after about a quarter of an hour by violent general convulsion, and death from asphyxia in a few minutes. He considered the first convulsion to be reflex, and that during this basal hæmorrhage took place, causing the second fatal attack. The cocaine probably caused increased nervous excitability. He believed that this was the first recorded case of the kind.

2. *Case of Removal of Button three-quarters of an inch in diameter from posterior nares*, which had been *in situ* for about eight years, causing fetid discharge, nasal occlusion, and asthmatic attacks of dyspnœa, in a patient aged thirteen years, who had no recollection of how the foreign body entered the posterior nares.

3. *Case of Intra-cranial Abscess* originating in caries of sphenoidal cells in a man aged seventy-eight. Pathological section of skull was exhibited, showing complete destruction of interior of sphenoidal bony cells, and encysted abscess extending between the layers of the dura mater from middle line to left temporal region, and extending into left orbit.

Mr. MAYO COLLIER (referring to the first case): I think a great many of these cases are due to some idiosyncrasy of the children, and will always happen as long as there are children. In a case I operated on myself the child was well till nine o'clock, but convulsions suddenly came on, and the child died in ten minutes. The whole nervous system is upset, and a violent explosion takes place in the centres of the brain and cord, and the child dies.

Mr. LENNIX BROWNE: This is not the first case I am aware of, although it is the first case published of death after the removal of the post-nasal adenoids. I should be loth to think that the cocaine had anything to do with it, because the child seems to have recovered so very quickly from the application of cocaine. I must say, however, that in my judgment cocaine is a remedy which is used too frequently, and in children especially it should be used with caution, but I can hardly think it had anything to do with the regrettable result in this case.

Dr. SANDFORD: I should like to say in reference to cocaine I am extremely obliged for the remarks that have been made. I have had great experience of eye and throat work, and I have seen evidence of the toxic effect of cocaine. This is the only case I know of extreme nervous irritability seeming to go on four or five hours after the operation, and I can only attribute the occurrence of the fatal symptoms as arising after the cocaine had passed off.

Dr. MILLIGAN read notes of the following cases :—

1. *Primary Lupus of the Septum Nasi.*

E. B., aged thirty-five, consulted me in August, 1892, upon the recommendation of Dr. Hill Griffith, of the Manchester Royal Eye Hospital, on account of the presence of pain on the bridge of the nose, and a thin ichorous nasal discharge. She stated that for the last four or five years she had suffered from nasal discomfort, but that the sensation of pain had been of only a few months' duration. In addition to her nasal trouble, she suffered from stricture of the right naso-lachrymal duct, and was under Dr. Hill Griffith for the treatment of this affection.

Although never robust, she had enjoyed fairly good general health. Her father died at an advanced age of apoplexy. Her mother was still alive, aged seventy-three. She had one brother and one sister, both alive and healthy. Upon examination the patient was found to be a fairly well nourished woman. She presented the scars of several broken down strumous glands in the neck. The respiratory, circulatory, and urinary systems were healthy. She had suffered at times from chronic dyspepsia.

Upon rhinoscopic examination the mucous membrane of the nasal passages was seen to be distinctly anæmic. A small perforation of the cartilaginous portion of the septum nasi was found upon its anterior inferior aspect. The edges of the perforation were sharply defined, and surrounded by a few small tubercles. The mucous membrane covering the right inferior turbinated body was markedly swollen, but no tubercles could be seen upon it.

The diagnosis made was primary lupus of the septum nasi with perforation. Two or three of the small tubercle-like masses were removed with forceps, and subjected to microscopical examination, with the result that typical giant cells were found. No bacilli could be demonstrated, although they were carefully looked for.

The treatment consisted in the thorough application of the galvano-cautery, and subsequent swabbing with a four per cent. solution of blue pyoktanin. The patient was kept under close observation for several months, and local treatment persisted in until all morbid appearances had disappeared. At the same time cod liver oil and ferruginous preparations were given internally. The patient has remained well for many months, and when last seen, a few weeks ago, the nasal mucous membrane, although somewhat anæmic, appeared otherwise healthy.

2. *Acute Suppurative Inflammation of the Anterior Ethmoidal Cells.*

B. K., aged fourteen, a well-developed and healthy-looking girl, consulted me, on the advice of Mr. E. Roberts, of the Manchester Royal Eye Hospital, on account of a stoppage in the right nasal passage. She dated the onset of the trouble to a severe attack of cold in the head, contracted three weeks before coming under observation. The difficulty in nasal respiration had gradually increased, and a small quantity of a muco-purulent discharge was constantly collecting in the right nasal passage. A week after the commencement of the present trouble a small swelling began to form in the region of the inner canthus of the

right eye. The swelling had gradually increased, and was accompanied by a certain amount of pain. This pain was referred to the centre of the head and to the back of the right eyeball.

Her previous health had been good. Her father and mother are alive, and appear to enjoy good health. The father admitted having had an attack of gonorrhœa as a young man, but denied ever having had syphilis. The patient was the only child, and the mother had not had any miscarriages.

On examination, the following condition was found. A considerable swelling was seen to occupy the region of the inner canthus of the right eye. The skin over this swelling was discoloured and the surrounding parts were œdematous. Pressure produced slight pain.

The right nostril was found partially filled with muco-purulent fluid. After removal of this secretion, a smooth swelling was seen to occupy the region of the middle meatus. The swelling gave me the impression as if the middle turbinated body had been blown out. There was considerable nasal stenosis.

The diagnosis arrived at was acute suppurative inflammation of the mucous membrane lining the anterior ethmoidal cells, and immediate operation was advised. The patient was accordingly put under chloroform, and an incision made over the external swelling. Pus at once flowed out. Examination with the probe showed that a large fistulous tract led into the distended anterior ethmoidal cells. Bare bone could readily be traced high upwards towards the base of the brain, and across the middle line of the nose into the cells of the opposite side.

With a small Volkmann's spoon careful curetting was performed, and the whole cavity (which was very extensive) cleared of all *débris* and prominent spicules of bone. At the same time a large opening was made into the right nasal passage. The cavity thus formed, after thorough irrigation with a one to three thousand bichloride solution, was dusted with iodoform powder, and loosely packed with dry iodoform gauze. This was changed every day for the first three days, after which a large drainage tube was inserted. Irrigation was carried out daily with warm (one to three thousand) bichloride solution. At the present time (now three months since the operation) the patient is still under treatment. Bare bone is still to be felt upon examination with the probe, although a large part of what previously had been bare has become covered over with granulations. The general health of the patient remains good.

Remarks.—The special point of interest in the case appears to me to centre round the etiology of the affection. So far the patient's history points merely to an acute catarrhal process as the cause of the trouble. I am somewhat in doubt as to whether an acute catarrhal process of only three weeks' duration could have produced such extensive disease of the bone, and have been somewhat inclined to think that possibly the suppuration and extensive caries might be due to the rapid breaking down of a gummatous tumour. Against this theory, however, is the father's denial of ever having had syphilis (although he admits an attack of gonorrhœa), and the fact that the patient shows no signs of congenital syphilis. I shall esteem it a favour, Mr. President, if any of the Fellows here present,

who have had to deal with somewhat similar cases, would be good enough to let me have the benefit of their opinion.

Dr. HOLBROOK CURTIS said: From the description of the case, and the appearance of the eye in the photograph, I should regard the exophthalmos as indicative of disease of the posterior ethmoidal cells and sphenoidal sinus. I have had an opportunity of observing, with Dr. Knapp, of New York, two or three cases very similar to this one; operation verified the diagnosis of posterior complication. I have recently made an orbito-nasal fistula for drainage in a somewhat similar case.

Mr. F. MARSH (Birmingham) showed specimens and read notes of a case of *Multiple Adenomatous Growths of the Larynx removed by Thyrotomy, without a preliminary Tracheotomy.*

The patient, a married woman, aged twenty-two, was first seen on March 14th, 1894. Four years previously (when a school teacher) she had a "bad sore throat," and her voice has never been right since. She gradually became hoarse, and for the last two years has only spoken in a whisper. It is now a great effort to produce even this, and in addition she has had more or less dyspnoea for some months. This has got much worse lately, and she cannot now lie down, but has to be propped up with pillows when in bed, and even thus the attacks of dyspnoea are frequent and alarming. Examination with the laryngoscope revealed a cluster, the size of a small strawberry, of apparently multiple papillomata, growing chiefly from the anterior commissure and anterior part of the left vocal cord, and occluding quite two-thirds of the opening between the cords.

Removal of the growths was advised, and a series of trials were made to effect this by intra-laryngeal methods. The patient was, however, very neurotic, retching was easily excited, dyspnoea came on in a few seconds if the head was placed in position for laryngoscopy, and consequently the idea of intra-laryngeal removal had to be abandoned.

Thyrotomy was performed on April 20th under general anaesthesia. The usual incision was made, and the lower three-fourths of the thyroid cartilage was divided, with the crico-thyroid membrane. As hæmorrhage was rather free from the divided base of the growths, the cricoid cartilage was also divided, and a tube inserted into the trachea from the lower angle of the wound, and packed round with two small pieces of sponge.

The growths were removed with forceps, and the area from which they had been removed was touched with pure carbolic acid, which checked the oozing of blood, which had been very free. The tube was now removed, and the cartilages and membranes sutured with chromicized catgut. A little difficulty was experienced in accurately coapting the thyroid cartilage, which, from being forcibly held apart, had become completely split. The patient was taken back to bed breathing quite comfortably. A few hours afterwards she had an attack of dyspnoea, probably from accumulation of secretion, which soon passed away. The first two days she was kept in a semi-recumbent position, fed *per rectum* with nutrient enemata, and forbidden to speak. The neck was kept at rest with a millboard collar. The wound healed by primary union, and so far as the operation was concerned the patient was practically well

forty-eight hours afterwards. Although the removal of the growths had cured the dyspnœa, the voice still remained a "whisper."

On May 8th examination with the laryngoscope showed a small excrescence, resembling granulation tissue, in the anterior commissure. On May 21st this had considerably increased in size, and was doubtless a recurrence of the growth, so full doses of arsenic were prescribed. On June 21st there was marked diminution of the growth, and the voice was stronger, a few words could occasionally be spoken almost normally. Since this date she has been away from home, so that no further report of the condition can now be made.

A microscopical examination of a piece of the growth had been made by Mr. Leedham Green, F.R.C.S., who reported that it was not a papilloma, but of a typical lymphoid or adenomatous structure.

Mr. MARSH said that he had reported this case to the Association partly because of the method of operation, which had been a subject of discussion at the last two meetings, and partly because of the structure of the growths, which, both before and after removal, could not, by the naked eye, be distinguished from papillomata, and would have been recorded as such had not a microscopical examination been made. It seemed to him to closely resemble that published by Dr. Norris Wolfenden and Dr. Martin in "*Studies in Pathological Anatomy*," and referred to by Dr. Wolfenden at the June, 1893, meeting of this Association.

DISCUSSION ON DR. WOLFENDEN'S PAPER.

Mr. LENNOX BROWNE commenced by expressing his entire concurrence with the President's high appreciation of the valuable paper offered for discussion.

He remarked that while it was to a large extent an outcome of what Dr. Macintyre had offered to the Association on various occasions in previous sessions, it was in turn likely to prove fruitful of far-reaching results of the greatest possible practical value.

The speaker well remembered the shock of surprise which was occasioned by the opinion of Dr. Jacobi, of New York, first uttered at Glasgow in 1888, that every case of follicular tonsillitis was a possible focus of diphtheritic contagium; but there could be no doubt that daily experience, both bacteriological and clinical, was accumulating evidence in support of this statement.

Mr. Lennox Browne ventured to take some credit to himself as having been the first—certainly among English writers—to draw attention to the error of describing as follicular tonsillitis a disease which had nothing to do with the follicles, but which in truth attacked the crypts or lacunæ. And although this error had been avoided in the body of the paper, it was to be regretted that it had been suggested in the title.

Coming to the subject of the discussion, he quite agreed with Dr. Wolfenden on the importance of insisting that the presence of membrane, its amount, and in a measure its consistence, depends almost entirely on the intensity of the inflammatory process; to which he would add also the age of the patient. For one was constantly seeing cases

in adult life in which bacteriological examination during the attack and also the sequelæ proved it to be truly diphtheritic, though in the earlier stages no other local evidence had presented in the throat than that of hyperæmia, and this not always of even a high grade.

He also thought it important to insist that the Loeffler bacillus, and that only, must be taken as the irrefragable evidence of a true diphtheria, while the paralyzes and other asthenic sequelæ are the results of the toxic action of the bacillary ptomaines.

Referring to Dr. Wolfenden's classification of tonsillar inflammations according to the organism present, it might be remarked that we are not yet in possession of full knowledge of the exact infective relation of streptococci, staphylococci, and pneumococci with the bacillus, a proof of which may be found in the fact that, though during an attack of scarlet fever the throat complications are not truly diphtheritic, the exudative inflammations which occasionally occur as sequelæ of this disease are said to be so. It is, however, worthy of notice that according to several observers, streptococci predominate in this variety of diphtheria, and as is well known inoculation with pure cultures of these does not produce false membrane, but only local inflammation. Especially to be mentioned in this connection was the opinion of Ruault, that these exudative inflammations might be classified as mono-microbial and poly-microbial, the former representing true diphtheria, the other false varieties. Possibly this classification might be more acceptable than Dr. Wolfenden's, to which Dr. Macintyre had taken exception; it certainly was more scientific.

Mr. Lennox Browne referred to the circumstance that he had advanced the ptomaine theory as a tenable hypothesis in the second edition of his book, published in 1887, before there were any actual facts to establish the conclusion. In deference to adverse criticism he had been weak enough to somewhat modify this opinion in his third edition (1890), but he had felt justified in re-asserting it all the more strongly in the fourth edition (1893), since, on the authority of the later researches of Ruault, Baginski and Booker, what had been previously propounded as a theory had now been established as a conclusion.

Dr. LAW remarked that a most valuable and practical result would accrue from Dr. Wolfenden's very able paper if Mr. Browne's suggestion be carried out, and he would ask him to put it as a resolution to the meeting. He was sure that country practitioners, who have neither the time nor the opportunity, would much appreciate this convenient and ready means of establishing a scientific, and, as it were, official diagnosis. If experiments on animals should be required, such investigations would be performed by duly qualified agents.

Dr. DUNDAS GRANT expressed his admiration for the exhaustive way in which Dr. Wolfenden had treated this important subject. He hoped that care and accuracy in clinical observation would not be lessened and all responsibility handed over to those who conducted the bacteriological examination. Although the clinical characters had been found to lead to different opinions from those derived—and correctly derived—from bacteriological examination, he hoped that the checking of the

former by the latter would lead to greater accuracy in clinical diagnosis. He was the more hopeful of this from the comparative harmony pointed out by Dr. Park, of New York, in a very valuable paper published by him in the "Medical Record," and abstracted in the *JOURNAL OF LARYNGOLOGY*, showing the results of a very large number of observations. Although in this country we were greatly hampered in the application of the biological tests on mice or other animals, Dr. Grant thought we would in time learn to recognize the effects, local and general, of the various bacteria—staphylococci, streptococci, pneumococci, Klebs-Loeffer bacilli, etc.—on the human subject, and to diagnose them by these effects as clearly as the bacteriologist does by their action on tubes of blood-serum or agar-agar. This was only to be arrived at, however, by continually checking our results on the lines so well laid down in Dr. Wolfenden's paper. The Local Government or the County Councils might well be urged to afford facilities for the bacteriological examination of brushings from doubtful cases of angina, as was now done in New York. He suggested that it should be part of the duty of every medical officer of health to make such examinations at the public expense whenever called upon by the practitioner in attendance on such cases to do so.

Dr. HOLBROOK CURTIS (New York), said: I consider it a distinguished privilege to be called upon to discuss so able and exhaustive a paper as that which has just been read. The views of Dr. Wolfenden as regards the propriety and even the necessity of bacteriological confirmation of the presence of the Klebs-Loeffer bacillus in membranous, and oftentimes in what appears to be but simple lacunar inflammation of the tonsil, have been already anticipated in New York. The Board of Health have established stations in various parts of the city, where sterilized test tubes, containing a wire and pledget of cotton, may be obtained free of charge, with directions for making a primary cultivation. The swab plunged into the nutrient medium is sent to one of the laboratories, and, in from twelve to twenty-four hours, the result of the examination is returned to the sender. Apart from ascertaining whether the case is to be reported as one of diphtheria or no, this sharing of responsibility with the State as consultant frequently relieves one of serious annoyance and worry. In the present state of bacteriological research, clinical observations are of as great importance as ever for the verification of theories. If I understood the reader of the paper rightly, he observed that the prognosis was apt to be unfavourable in proportion to the number of streptococci found in connection with the Loeffler's bacilli in the membrane of diphtheria. It is quite easy of comprehension that more virulent toxins may result from favourable combinations of bacilli or their secretions. In this particular type I should be inclined to the view that the peculiar toxins involved were the cause of the profound constitutional poisoning, rather than the supposition that the presence of streptococci exerted any specific effect upon the virulence of the diphtheritic bacilli. We might argue also on purely theoretical grounds, that the massing of large white corpuscles, as described in follicular inflammations, was the performance of a phagocytic function, rather than possessing a diagnostic significance. We

must all agree, however, upon one point, and that is, we have much to learn about the tonsils, their affections, and their function, and we may congratulate the writer of the paper upon having made a valuable contribution to our knowledge.

Mr. MAYO COLLIER said that he had tried to follow Dr. Wolfenden in his very able and learned exposition on the number and nature of the bacilli that found a resting-place and set up mischief in the faucial tonsil. He could not imagine why Dr. Wolfenden had confined his remarks solely to the tonsil so-called, or why the bacilli should apparently direct their attention almost wholly to this unfortunate structure. There were other masses in the pharynx, larynx, and mouth and post-nasal space, that were equally tonsils, and yet they were apparently ignored, both by the bacilli and the reader of the paper.

The bacilli must have an equally free access to all these structures, and yet the great majority of inflammations, if due to bacilli, affected the faucial tonsil alone. It was impossible to deny this statement.

To diagnose affections of the throat on the positive or negative evidence of the bacilli present was theoretically excellent, but practically impossible and absurd.

Whilst cultivating your serum, and using the microscope, the patient would be kept in suspense, no diagnosis or treatment would be possible, and infection and death would be the not unlikely result of this highly scientific procedure.

One knows well that in the case of the most virulent throat affection, namely diphtheria, the local appearances were anything, from a slight blush to membrane of marked thickness. To accept the conclusions of the paper meant mental chaos, so far as the diagnosis of throat affections was concerned, and an inability to do more when confronted with such cases than look wise, shake one's head and call for a microscope.

Mr. LENNOX BROWNE, rising again, begged to remind Mr. Mayo Collier that the site of lacunar inflammations and diphtheritic manifestations was by no means limited to the faucial tonsils, and that attacks in the pharyngeal, lingual, and laryngeal tonsillar structures might probably be held responsible for extension of the disease in those regions. He referred to his experience during an epidemic of diphtheria in 1887, in which two sisters, among others residing in the same school, had been attacked, one of whom he had attended suffering from pharyngo-laryngeal diphtheria, from which she recovered. The other sister had no throat symptoms, but died from perforative peritonitis, the result of diphtheritic enteritis—at least this was the opinion given by the late Dr. Wilson Fox, who saw the case.

With a view to making this discussion of real benefit to the world at large, Mr. Lennox Browne suggested that representation should be made to the Local Government Board, in order to obtain facilities for the regular examination by skilled bacteriologists of the exudations from suspicious cases, as were in force in the United States.

He took this opportunity of alluding to a point he had missed in his first remarks, viz., the connection between tonsillitis and rheumatism, his views on which had received very general recognition. The late Sir

Andrew Clark, in reply to a letter from him, written in 1889, had suggested that many of the so-called pains associated with throat inflammations, as indeed much of rheumatism itself, might be due to a more or less pronounced pyæmic condition. The speaker was convinced that this was the case in some of the graver forms of tonsillitis, and it was possible that it was so in all.

MR. WYATT WINGRAVE, in support of the view that acute tonsillitis was not purely local disease, mentioned cases which were associated with appendicitis and suppuration of synovial membranes.

ELEVENTH INTERNATIONAL MEDICAL CONGRESS IN ROME.

SECTION OF LARYNGOLOGY.

(Continued.)

SURGICAL TREATMENT OF LARYNGEAL PHTHISIS.

By Dr. GOUGUENHEIM.

I.

Invited by our eminent *confrère*, Prof. Massei, to co-operate with Dr. Heryng of Warsaw, and Mr. Lennox Browne of London, to lay before the section the result of researches upon this subject, gathered from different parts of the world, I must state, firstly, that these *four-parlers* have not succeeded. Dr. Heryng proposed to divide the subject into several portions: (1) Local treatment by different topical applications, (2) Electrolysis and galvano-cautery, (3) Surgical treatment properly so-called (resections, more or less extensive, of the affected mucous membrane by means of simple or double curettes). Mr. Lennox Browne preferred to treat the subject from his own point of view and without being limited, and I myself, after this refusal of collaboration, thought that it would be much better to keep to the discussion of surgical treatment properly so-called, for this method, the most modern, and of which the results are most encouraging, seemed to me to especially interest laryngologists. How can we say anything new upon the treatment by different topical remedies? Is it worth while to enumerate anew the innumerable medicaments with the varying opinions of specialists, praising some, depreciating others, and basing the indications upon observations incomplete, and scarcely ever conclusive? This is not a meeting in which these apologies and criticisms may be presented, and I shall not attempt to do so; the pages which I could write would be many, but the small interest which they would possess forbids me from inflicting an enumeration so long and precise. It is not that I send forth the opinion that this treatment has passed away; far from it! The service which it daily renders, its ease of application, not only by laryngologists, but by physicians less

familiar with laryngological practice, will make it always a precious method of auxiliary internal treatment, and I can testify to its reality by recalling numerous patients attending at the Hôpital Lariboisière for local applications, which this treatment ameliorates and prolongs. But it is the severe symptoms which this elementary treatment cannot modify, and it is then that surgical treatment can intervene with success, a treatment which can only be applied by the experienced practitioner. In order to succeed it must answer to certain indications. It is the discussion of these indications, and it is the consecutive operative practice that we must study with care ; it is, it appears to me, a side of our specialty little banal, which necessitates a very profound discussion, and this interesting discussion could not be better conducted than before a meeting of physicians so competent as those of the Section of Laryngology of the International Congress of 1894.

II.

Is it necessary in this surgical treatment to assign any large part to electrolysis and the galvano-cautery? I do not think so. *Electrolysis*, which was recommended some years before by our distinguished colleague Dr. Heryng, would not seem to have sufficiently proved its value, or to have acquired many adherents. Does that proceed from the duration of its application, which renders it a means difficult of application to the larynx, from the difficulty of estimating the electrical force necessary? We cannot say. In our hands it has not been a method very easily employed, and I must say that it has not been employed by many physicians ; and we cannot confirm the advantages of this method.

The *galvano-cautery* was employed by us at a period when surgical treatment by curettes had not yet been attempted. I have observed good results in some cases, but I have seen numerous failures. I can assert that its action is much less efficacious than that of surgical treatment by means of curettes. The eschar which follows disappears slowly, numerous sittings are indispensable, and such is not the case with the method under discussion.

Ought *tracheotomy*, recommended by some, violently attacked by others, to have a place in our programme? Let us say at once that tracheotomy is not a curative means of laryngeal phthisis. Its aim is only to combat grave dyspnoëic accidents, and it has no other. However, it can render great service in the method we are about to discuss, on condition of being only a prelude to the surgical treatment of the larynx, which it will facilitate by removing all fear of dyspnoëa by intervention in the larynx. Some of our patients were tracheotomized. We might certainly make some very interesting remarks *à propos* of tracheotomy, and upon the new and inoffensive manner in which we practise it, but we repeat that this method of treatment cannot make a part of the surgical treatment of laryngeal phthisis, and that it is only an auxiliary in certain cases.

III.

Surgical Treatment of Laryngeal Phthisis.—Twelve years ago, Moritz Schmidt, of Frankfort, proposed to treat tubercular affections of the larynx by deep incisions into the pathological tissue. This treatment,

defended with talent by its author at the Laryngological Congress of Milan in 1881, had no great following. Some years later our colleague Heryng, of Warsaw, introduced the use of the simple curette into the treatment of tuberculosis of the larynx. In 1887 I had the honour to record, before the Medical Society of the Hospitals of Paris, the first results in practice of our *confrère*. A little later Krause, of Berlin, undertook this treatment, and used not only a simple curette, but an instrument which he called the double curette, and which was more appropriate for the extirpation of the affected tissues than the simple curette. At the same time I commenced my researches, and having failed with my first trials with the simple curette, I had constructed by Mathieu, of Paris, an instrument which I called an "*emporte-pièce*," and which was adapted to the handles of Stoerck and Schroetter, an instrument identical with that of Krause, of which I did not know the existence. When Krause came to Paris in 1889, he was surprised, in viewing my instruments, to find this "*emporte-pièce*," smaller than his double curette, but of similar construction. Later on, encouraged by the successes which my cutting forceps procured me, in the treatment of polypi and laryngeal neoplasms, I had constructed an instrument of similar form, to the end of which I replaced the forceps by the *emporte-pièce*, to which I gave larger dimensions, which allowed me to extirpate pieces more considerable in size of pathological tissue, and even fragments of cartilage. This model has not varied since. I always use the simple curette, and the model of the simple curette I employ appears to me more commodious than that of Heryng, permitting me to apply the curette in the necessary direction. I use concurrently the three instruments, *emporte-pièce*, simple curette, cutting forceps, in the surgical therapeutics of laryngeal phthisis.

IV

This treatment, I ought to say, has not met with the favour of Parisian surgeons. Surgical treatment of laryngeal phthisis, so commonly accompanied with pulmonary tuberculosis, often advanced, has been considered as an enormity. *Let us rather say that the question has been badly presented*, for the pretension of curing an organ radically, so diseased, is difficult to sustain, especially when pulmonary tuberculosis has already made serious progress, and the statistics of our *confrères*, where it is merely a question of survival more or less long, was not encouraging for the propagation of this method of treatment as a curative therapeutics. It is difficult to affirm also that surgical treatment can attack easily all parts of the larynx; for example, the ventricles, the vocal bands, a locality so common for laryngeal tuberculosis, are not easy to reach with instruments. Lastly, the general bad condition, the almost constant coincidence of pulmonary tuberculosis, argue unhappily against all hope of definitive cure. But if we admit that the tubercular subject, who cannot swallow by reason of the intolerable pains which are produced among many patients by the passage of food, who cannot *aerate* by reason of the obstacles which the passage of air meets with at the entrance to the larynx, is menaced with but brief existence, from the loss of these two

capital functions, it is legitimate to seek means to combat these causes of rapid decline. We have the resource of tracheotomy against dyspnoea, but if the patient is released from the grave danger by this operation, he is not relieved of dysphagia, and it is to permit him to sustain himself that we have recourse to surgical treatment—the only one which permits us to struggle with success against the consequences of inanition, and to increase the strength of the patients who, thanks to this intervention, have been enabled to quit our wards in a condition good enough to follow their usual avocations. Never have the anæsthetics so commonly applied, cocaine and menthol, been able to give such rapid, efficacious and prolonged therapeutical results.

V.

When we have occasion to examine histologically the tubercular tissue which constitutes the arytenoid masses which are so commonly met with in laryngeal phthisis, it is easy to explain the dysphagia so tenacious and rebellious to every topical application. Ten years ago we stated with Balzer the nervous lesions which appeared to us to explain the cause of the dysphagia of phthisical patients. This year I have undertaken anew these researches with the help of my *interne*, M. Michel Dansac, whose histological ability is beyond all question, and I can show to you the very grave disorders in the texture of the nerves.

VI.

The operative method which we employ is of a simplicity in application which has always struck the numerous surgeons who have done us the honour to frequent the clinic of the Lariboisière Hospital. Preliminary anæsthesia is commonly made with a very strong solution of hydrochlorate of cocaine of thirty-three per cent. That of the pharynx and base of the tongue is made with the greatest care, so that the drawing of the tongue out of the mouth may be easy, and the application of the laryngeal mirror may be easily tolerated. Then the anterior posterior *emporte-pièce* is placed, with one branch behind the arytenoid region and the other branch within the larynx. This movement should be guided with care, and when assured that the diseased portion is well seized between the two teeth of the instrument it only remains to press strongly to resect the tissues, which is generally easy, if the instrument cuts well. Consecutive hæmorrhage is but slight, and the pain of the operation is almost *nil*—it is sometimes possible to operate immediately after on the other side; as soon as the forceps are withdrawn, the cavity of the *emporte-pièce* is seen to be covered with a mass of tissue. This tissue was immediately put into appropriate liquid for histological examination. After the operation the patient swallows ice for a certain time—fifteen to thirty minutes—and hæmorrhage is very quickly arrested. It has happened to me, more than once, to practise these operations on patients outside, without having ever had any respiratory trouble, and I am convinced of having been able to avoid tracheotomy in some cases. I have, however, always preferred to have the patients in hospital in order to make daily swabbings more frequently, which I find indispensable. I

have for two or three years employed camphorated naphthol (two of camphor and one of naphthol β) to brush the wound, and I perform the swabbings daily.

Next day after the operation, generally, dysphagia is better, and it disappears rapidly enough to permit feeding and appropriate medication of the patient.

Nothing is more prompt than the cicatrization of these wounds; at the end of two weeks, rarely more, the wounds no longer suppurate, and cicatrization follows in two or three weeks at most. The place of the wound becomes slightly red, and this is of nearly normal colour; with the laryngoscope it is difficult to see the cicatricial tissue. Rarely the patients succumb a little after operation, at least when the tubercular cachexia is not too advanced, and even in cases of this kind, where I have intervened, the relief has been very clear, and the sufferings of the unhappy patient have ended.

It is not commonly necessary to have recourse to several operations, but we may sometimes be obliged to resect some pieces floating in the larynx, which is easy to do with my cutting forceps.

VII.

I have just spoken of resection of the arytenoid region, or *arytenoidectomy*, in tubercular dysphagic patients, by means of the double curette of Krause or of my *emporte-pièce*. I recall the fact that, *à propos* of the appreciation of surgical treatment of laryngeal phthisis, I had said that this treatment had not entered much into the practice of specialists, because the indications for operation had been badly set forth; but is it due to the fact that one of the vaunted indications for laryngeal phthisis has never had any pretension to be radically curative? Would it not rather answer to one of the numerous and pressing indications which are presented in the course of this grave disease? Then why not admit practical surgery as indicated by one of the gravest signs of laryngeal phthisis, dysphagia, so much the more that histology explains to us in the most conclusive fashion how this heroic method rapidly relieves an insupportable symptom? To set forth the question of surgical treatment in this manner will certainly aid more its solution than affirmation of the cure of laryngeal phthisis. Is it possible to hope for cure of laryngeal phthisis? This is so rare that it would be imprudent to defend such a proposition under these conditions. However, the researches of Heryng are encouraging from this point of view. But ablation of all parts, ulcerated and swollen, of the larynx is not easy, and, whatever care may be taken, I have already said that certain parts escape the action of the curette — the ventricles and ventricular bands, for example, which are often altered by the tuberculosis. When, after the first experiments of Heryng, I had undertaken, I remember, to attack laryngeal phthisis by curetting the various parts of the larynx by means of the simple curette, not only did I not succeed, but my experiments were sometimes pretty dangerous from the point of view of respiration, and I was obliged to discontinue them. I began to succeed only when I decided to combat only the symptoms dangerous to the life of the patient, and dysphagia is certainly the gravest which can

menace the life of the unhappy phthisical patient. I have said before that in triumphing over dysphagia I have sensibly diminished the dyspnœa, and have sometimes even improved the voice.

VIII.

It is, however, the localized lesions in certain parts in laryngeal phthisis that the *emporte-pièce* cannot modify, for it does not easily adapt itself; the seizure of these parts is difficult by this instrument, and I have then had recourse to simple curettes. I have preferred to use fixed curettes, not capable of modification in their situation; for these changes, which are very easy before the introduction of the instrument into the larynx, have no fixity after this moment. I have, therefore, had curettes constructed cutting anteriorly, posteriorly (the one I most commonly use), and two with lateral section for the vocal cords especially.

Cocainization ought to be made very carefully, as for arytenoidectomy, and the instrument introduced into the larynx ought to be placed below the glottis. By a rapid and vigorous movement from below upwards, the wall of the larynx is scraped and the part removed, but, little voluminous, is rejected immediately by expectoration, and rarely remains in the curette. This method is especially employed in the pachydermia of tuberculosis, a lesion much less grave than aryteno-epiglottic infiltration, because the general condition is less altered, and the pulmonary lesions are commonly less advanced. Respiration may be impeded by the morbid productions of the surface of the posterior wall of the larynx, which constitute the pachydermia, but it is especially the voice which is altered, and nothing is more interesting than the return of this function, after the intervention which I have just described.

IX.

It is especially for dysphagia, dyspnœa, and aphonia that I have the pretension to employ the surgical methods which I have just described. As we may see, according to the statistics which I shall present, our patients may be so improved by this treatment that those who were in hospital, even after tracheotomy, have been able to leave our wards, finding themselves vigorous enough to recommence work, and I have, therefore, not to present as many autopsies as patients; but, unfortunately, the social position of these unfortunates cannot permit them to hope for a definite return to health, whether they desire to resume their avocations, or whether, on going out of our hospitals, they are obliged to live in the most unsalubrious and most antihygienic conditions.

I have rarely seen our patients succumb after operation, at least, when the cachexia was not too far advanced. As to those who have been so far improved as to believe themselves cured, and who I have had the good fortune to follow and continue to treat in my external clinic, I have seen them last a long time, sometimes months, or a year and more, and it is only lately that the chance of an autopsy has permitted me to state the duration of the cure of the laryngeal affection, and to examine histologically the tissue of the cicatrix, as Heryng has already done.

In spite of incontestable and encouraging successes, how is it that this practice does not increase more in the well-to-do patients of towns? I believe, as I have previously said, that this is due to the fact that the question has been badly presented to the medical public. The surgical treatment of laryngeal phthisis may contribute to the cure of tuberculosis by improving the condition of a very diseased organ, but it may arrive at this result by causing the disappearance of dysphagia and dyspnoea—that is to say, by allowing the patients to feed and breathe, and it is a result great enough to allow this method not to be condemned from indifference. I shall not discuss in this exposition the more radical methods, such as laryngo-fissure, laryngotomy, laryngectomy; the means of discussion fail me to appreciate these extraordinary methods of treatment, and I prefer to abstain, having no experience, direct or indirect. Dr. Castex has recently defended before the Société Française de Laryngologie et d'Otologie these last-mentioned methods, but he has not supported his thesis by reports sufficiently convincing or numerous.

X.

In 1890 I really commenced the surgical treatment by means of the instruments which I have mentioned, the *emporte-pièce* mounted on ringed branches, and the simple curette with a direction varying according to the case. Before this epoch I had already tried to treat some patients, but—either my first *emporte-pièce* was too small, or the curettage was addressed to portions of the organ too difficult to modify—I have not succeeded. In 1890 and 1891, I had very encouraging results, but then I did not dare to generalize upon this method, as I have since done, and I recorded no cases. It was only in 1892 that my *interne*, Dr. Hélyar, decided to make this method the object of his inaugural thesis, and collected a certain number of facts. At the clinic of the Lariboisière hospital the number exceeded twenty-five.

In 1893 I continued the treatment, which was accepted by the patients with the greatest confidence, by reason of the success which they could observe in their neighbours. The number of patients as much arytenoidectomized as simply curetted has actually risen to more than eighty-six during the succeeding two years. Most of our patients, very much improved, have been able to leave our wards in a comparatively satisfactory condition; a certain number renewed their sojourn at the end of a time more or less long; a small number succumbed a little time after the operation. Our autopsies were not very numerous, because our patients were mostly able to leave our clinic. That which strikes the reader of these cases is the disappearance of dysphagia, sometimes very rapidly, in other cases more slowly, but I must say constantly.

Patients who found it impossible to swallow could in a few days swallow, with an ease truly surprising, a great amount of nourishment.

Lastly, in some, the dyspnoea and aphonia disappeared, especially the dyspnoea, and the patients operated upon could leave their beds, and walk in the wards, if the temperature permitted.

Residence in the hospital was not always necessary, but it was preferable by reason of the daily swabbings consecutive to operative

manœuvres. This rest has been more frequent in cases arytenoidectomized than in those simply curetted, in order to destroy pachydermic masses of the posterior surface of the larynx.

The arytenoidectomies, almost always double, have been about fifty-eight. The treatment with residence of the patients in the wards has been forty-seven. The patients treated at the clinic and returning each evening have been eleven. The number of those who affirmed themselves cured was twenty-five. Those who were improved amounted to thirty.

I find even among my notes five cases in which improvement is maintained, and the patients have returned to see us at the end of a year. Among those in whom the improvement has varied we have had some deaths in consequence of the progress of the pulmonary tuberculosis. All our arytenoidectomized patients have had pulmonary lesions in the second degree, sometimes more advanced. The pachydermias which we have treated by means of the simple curette were twenty-seven during the years 1892 and 1893. Of this number thirteen have been treated as out-patients and fourteen in the wards. Among seven the voice returned in a very clear manner, and in ten improvement was very noticeable. In the others we could not see any change, and some succumbed to the progress of the pulmonary tuberculosis. All the pachydermias which we operated upon had serious pulmonary lesions.

EXAMINATION of the CICATRIX from a TUBERCULAR ARYTENOIDITIS.

By Dr. MICHEL DANSAC.

The cicatricial tissue is composed of adult connective tissue fibres, mixed with very rare normal fasciculi, without hypertrophy and without tendency to proliferation. We do not find any fibrous nodules of *concentric* fibres, and nothing which would lead one to diagnose a cured tubercular lesion, if we made only one examination of several sections. The glands are destroyed, although in their place we can observe very small regenerated acini, forming groups elongated and parallel to the direction of the fibres.

None of the nervous filaments present lesions, either of perineuritis or of segmentary neuritis; the pathological fibres of Remak, so numerous and clear in sections of pseudo-neuroma, are, on the contrary, absent in all sections.

On the REFLEXES originating from the NOSE, PHARYNX, and LARYNX.

By Dr. ROQUER Y CASADESUS (Barcelona).

Functional disturbances met with in certain organs, or rather the various symptoms produced in certain apparatuses when the more or less

diseased mucous membrane of the turbinals is excited, has given place to the knowledge of certain symptoms in rhino-pathology. As is well known, under the title of "reflex neuroses of nasal origin," such well-known rhino-laryngologists as Hack, Voltolini, and others have maintained that an intimate relation exists between nasal troubles and disturbances in other regions. But others are not wanting, such as Schreider and Gottstein, who declare themselves distinctly opposed to the existence of such reflex neuroses.

At first sight it does not appear that the adversaries of the reflex neuroses have succeeded, because the facts are undeniable. For my own part, I must declare that I have been one of those who, in consequence of the magnificent results obtained, have been the strongest supporters of the existence of the reflex theory, and I think it should be considered in the nosological picture as a pathological entity of rhinology.

All of you doubtless have experienced the pleasure of succeeding in certain cases of convulsive cough, of facial neuralgia, of headache, etc., by the simple application of cocaine to the swollen nasal mucous membrane, or by cauterizing a part of the surface which one suspected as the productive cause of the symptoms. You will doubtless have asked yourselves what could be the relation of cause and effect between the two regions more or less removed from one another. If the vague employment of the word "reflex" has been sufficient to explain the facts, they are not made clearer or more satisfactory by this; while in the cases in which such perturbations were observed as convulsive cough, neuralgia, asthma, etc., and the starting point was always the nasal mucous membrane, when examining cases in which the disturbance reached the motor sphere and developed into general neuroses—to which I will refer later—and when one notes that it is not exclusively from the nasal mucous membrane that reflex disturbances are produced, but also from points situated in the pharynx and larynx, I commenced to be doubtful of the etiology and pathological explanation, and suspected the possibility of the existence of an etiological relationship between the exciting points and that general neurosis which is known under the name of hysteria. I will leave aside for the present the relationship between the facts observed and hysteria, in order to present the question in the first of its two points of view, *i.e.*, that certain of the symptoms regarded as reflex from the nose are also found with as much exactness to be derived from points situated in the pharynx and larynx, and that hence it is not exclusively from the nose that reflexes at a distance are derived.

I recall three cases of pertinacious dry spasmodic cough, sometimes coming on in long attacks, and which were produced in two cases by exciting a point situated on the posterior wall of the pharynx at the level of the uvula, and in the other the point was much larger, as it consisted of the whole oral portion of the uvula. These three cases occurred in patients of the female sex. A fourth case occurred in a well-known baritone, of Italian origin; the attacks of cough were produced by the irritation of a small zone, situated in the posterior pillar of the right side. I should remark that in these four cases irritation of the nasal mucous membrane never produced the slightest reflex symptoms,

and the examination of the chest showed not the slightest symptoms. The objective symptoms manifested by an exploration of the pharynx were those of chronic catarrh, such as is frequently met with. In a fifth case the patient frequently suffered from attacks of asthma. This patient presented a considerable hypertrophy of the lingual tonsil, and as soon as I had destroyed it the nocturnal attacks of asthma disappeared. In all these cases the patients were freed from their trouble by the destruction of the reflex zone with the galvanic cautery.

I must reserve a publication of these cases *in extenso* for another occasion, and brevity demands that I should only present the conclusion—viz., that it is not exclusively from the nasal mucous membrane that reflex effects at a distance are produced, but that identical effects may start from irritative zones in the mucous membrane of the pharynx, and also of the larynx.

Ruault, in an article entitled “*De quelques phénomènes neuropathiques Réflexes d'origine amygdalaire,*” describes certain cases of asthma and convulsive cough produced by hypertrophy of the tonsil. Admitting, then, that the nasal mucous membrane is not the only seat of reflex effects, let us go on to consider if it is possible to include the phenomenon in the morbid picture of a nervous malady of which the symptomatology is very extensive and of which, up to the present day, the true etiological and pathological conception is unknown—hysteria. I will refer shortly to the most typical cases which I have observed, in which perturbation starting from irritation of the nasal mucous membrane did not present the phenomena that one usually observes in cases of reflex neurosis, but on the contrary presented those hysterical attacks in the various clinical forms of that malady.

Observation I.: In my clinic I had the opportunity of observing a case which clearly showed the influence of the nasal mucous membrane in the development of hysterical convulsions. It was that of a young girl, aged sixteen, who, at her first visit announced that her object was to be cured of a kind of convulsive crisis, from which she had suffered for some time, and so frequently that at certain periods the convulsions occurred every day. Without at first thinking of the true cause of the malady, I directed the patient to the assistant in charge, and while she was waiting her turn, I noticed that her nasal respiration was somewhat impeded. I immediately thought of the necessity of exploring the nose to see if the affection might have any relationship more or less direct with the object of her visit, and I actually directed her to return another day to my study with the purpose of verifying this idea. This girl was of a lymphatic temperament, and of an aspect which gave the idea of incomplete intellectual development. On examining the nares I immediately detected hypertrophy of the two inferior turbinals, especially that of the left side. With a probe I first irritated the mucous membrane on the right side, and immediately the head of the patient commenced to move, the eyes to oscillate and close, producing a sort of lethargic condition, to which succeeded clonic convulsions, commencing in the upper extremities and spreading rapidly to the legs. Not esteeming it prudent to allow the convulsive seizure to reach its maximum, I applied

to the suspected point of mucous membrane a solution of cocaine (ten per cent.), whereupon the attack diminished and ended within two minutes.

During another visit from her I repeated the experiment by exciting the left turbinal, and the same phenomena appeared, but with greater intensity. From that moment I was convinced that the hystero-genetic zone was situated in the nasal mucous membrane, but with the purpose of fully convincing myself, at a third visit I first cocaineized the mucous membrane, and then touched the two turbinals without producing either lethargy or any convulsive symptoms.

During three visits I cauterized the suspected zones, and the patient had no further attack. From this account, briefly given, I make the following deductions :—

1. That the patient suffered from hysteria, characterized by very frequent convulsive attacks ;
2. That in the nasal mucous membrane existed a zone, giving rise to hysteria of a lethargic and spasmodic character ; and
3. That the destruction of the said zone brought about the cure of the complaint.

Observation II.: This case was that of a lady, thirty-five years of age, who consulted me during the month of February. Miss A. P. said that she had suffered for some time past from disturbances in various organs—headache, palpitation, dyspepsia, œdema, both fixed and erratic, insomnia, etc. Her object in consulting me was on account of nasal obstruction and some disturbed feeling in her throat. Her type was that of a hysteric, worn out with long suffering. She panted in walking, wore her dresses very loose, as she could not bear to be tightly clad, the abdomen was enlarged, and the inferior extremities cedematous. All of this was attributed by the patient to an affection of the heart. On closely examining this organ one heard no abnormal sound ; the only thing worthy of notice was the condition of hyperkinesis. I asked her if she had ever had convulsive seizures, and she replied negatively, but stated that ten years previously she had had cataleptic attacks. I examined the pharynx and found only slight signs of catarrh. In the nose the mucous membrane was normal in colour, the middle and interior turbinals hypertrophic, the swelling of the mucous membrane being more pronounced in the middle turbinal of the left side. I made a few applications of cocaine, and the headache was somewhat relieved, as well as the suffocative feeling, and as nothing more could be concluded at the moment, from the small effect produced by the cocaine, I dismissed the patient with the intention of repeating the observation the next day. In getting up to go away she fell like a piece of lead on an ottoman in my waiting-room, with, apparently, complete loss of sensation. The upper part of her body remained in the position in which it fell ; at the same time, being uninfluenced by the action of gravity, her physiognomy presented no alteration, and the patient appeared to be asleep. I applied a strong solution of cocaine to the nasal mucous membrane, and adopted the means usually advised in similar cases, and the attack ceased at the end of an hour and a half, the patient returned

to her senses, asserted that she had heard all that had been said, and she was conveyed home in a carriage, as her state of prostration did not allow her to go on foot. The attack was one of hystero-catalepsy. Was it provoked by irritation of a zone in the nasal mucous membrane?

I thought it better not to repeat the experiment in my own house, and requested Dr. Petit, her family doctor, to repeat the observation, and actually on the several occasions on which he introduced the brush or probe into the nasal fossæ, the cataleptic attacks returned, and in consequence, and from fresh experiences, I convinced myself that there existed in the nose an exciting zone, and I proceeded to the destruction of the swelling of the turbinals. The cardiac hyperkinesis disappeared, and with it the œdema of the feet, the swelling of the abdomen, the headache, and the cataleptic attacks no longer returned, so that in fact by March, Miss A. P. was hardly recognizable. Five months have passed and the patient remains perfectly well. It is most certain, therefore, that one may deduce the same conclusions as in the previous case, since only the form of attacks varied.

Observation III. : This is the case of a young lady, aged sixteen, daughter of a druggist. She was brought to me by the Professor of Therapeutics in the University of Barcelona, Dr. Giuseppe Masò. Like the preceding case, the patient came complaining of peculiar sensations in the throat. These, according to the patient, consisted in a constant obstruction as if it were a small ball which inconvenienced her considerably in swallowing. Examination of the pharynx revealed nothing more than some catarrh. I asked her father if she had ever suffered from hysterical attacks, and he answered that a few days previously when walking out she had almost lost consciousness without any apparent cause. I examined the nasal cavities and detected slight hypertrophy of the turbinals. I touched the mucous membrane with a probe and she was suddenly seized with a strong convulsive attack. After a moment of calm the attack recurred with considerable strength, but not such as the first time when I directly excited the nasal cavity. Everyone was astonished, the more so because they had never known the patient to suffer from them. The patient was calmed, and the same evening while at the theatre the attack was repeated. The next day when introducing the brush with a solution of cocaine the same kind of attack appeared, and lasted for more than three hours, returning at intervals during the day following. In spite of her condition I cauterized freely the inferior turbinals, and after several visits the attacks ceased to appear, even when all the spots in the nasal cavities were irritated. But, in spite of this, the feeling which the patient complained of in the throat continued. I carefully examined the pharynx and found in the left tonsil a region which produced a convulsive attack on being lightly touched. There was, therefore, a transposition of the hystero-genetic zone. I treated it as I had done the nasal centres and the patient was completely cured.

The irritation of the tonsillar zone never produced attacks of the same intensity as those associated with the nasal zone; they consisted of strong shocks of the abdomen and short contractions of the superficial muscles. The cauterization of the pharynx was carried out without

anæsthetizing the surface for the good reason that as it was endowed with such delicate sensitiveness even the contact of the brush, as in the case of the nasal mucous membrane, provoked an attack ; and then the patient being seized convulsively, clenched the mouth and rendered the cauterization impossible. On the other hand, one ought to notice that as the action of the galvano-cautery is energetic and instantaneous, it was much better to operate without previous anæsthesia. These are then the observations which serve as a basis for the development of my thesis. They prove that it is not only the mucous membrane of the nose which can produce reflex effects at a distance, but that in the pharynx and larynx there may exist zones which, on being excited, produce identical phenomena. Besides, it is not necessary to find the existence of special appreciable anatomical lesions, since cases of convulsive cough occur when the only objective symptoms are those of pharyngeal catarrh. Now little or no special influence could be excised by such a pharyngitis when the affection is found spread over all the visible portion of the organ, and the exciting zone is situated in one determined point. In the artist I mentioned as fourth case the zone was found localized in the inferior portion of the posterior pillar of the right side. In no other point of the pharynx did irritation produce any reflex phenomena. However, it is reasonable to admit that the cause of the disturbance is nothing else than irritation of the nerve filaments, without presenting any special anatomical lesion such as one ascribes to the swelling of the cavernous tissue of the turbinals in nasal neuroses. The other three observations show that by irritation of the turbinals, as in the cases of so-called reflex neuroses, violent attacks of hysteria in various forms are produced ; and they also show how in inveterate cases, and those occurring with extraordinary frequency, the destruction of the zones overcomes the disease so far that, at any rate, the disturbances do not recur for some time.

I divide the observations I have made into two groups : in the first group I have included the cases in which the functional disturbances are of a similar nature to those which are derived entirely from the nasal mucous membrane, and are known under the name of mucous reflexes ; and in the second group those in which the symptoms manifested point to hysteria proper.

Well, now, what difference is there between the two groups of cases ? Very little, or rather none at all. I have seen similar symptoms produced in the cases in which the reflex excitable zone was situated in the nasal mucous membrane, as in those in which the zone was found in the pharynx or larynx ; in the same manner I have seen attacks of convulsive cough produced, or asthmatic seizures, or hysterical attacks of varying intensity. Ought the convulsive attacks, which are artificially produced by exciting the mucous membrane of the nose, to be considered as one of the many phenomena due to the reflex neuroses of nasal origin, or on the contrary should the reflex nasal zones simply be considered as hystero-genetic areas ?

And in this latter case what difference is there between the one and the other ? This then is the true point of view from which we ought to

investigate the question. If one examines the writings of the best clinicians it will be found that hysteria is regarded as a general neurosis without fixed localization, capable of producing the strangest symptoms, functional perturbations in the spheres of movement, intelligence, and sensibility, but without a perceptible anatomical lesion which can be regarded as the co-efficient cause of the neurosis. The pathology and etiology is extremely vague, as are also the indications for treatment, on account of the want of positive data to fix the real cause of the malady.

It is not long since various authors, with Charcot at their head, have made known the hystero-genetic zones and their localization in various parts of the body; base of the sternum, xiphoid appendix, under the clavicle, angle of the scapula, region of the ovary, spinous processes of the vertebræ, and others too numerous to mention. It is to be remarked that all these zones have connections with the surface of the body; no one has called attention to the possibility of zones being localized in the mucous membrane, and especially in those of the organs of the senses.

Lichtwitz was, so far as I know, the first to carry out investigations in hysterical subjects to show the existence of the above-mentioned hystero-genetic zones in the mucous membranes of the upper air-passages, as well as in certain points of the apparatus of hearing and seeing. In his valuable work "*Les Anesthésies Hystériques des Muqueuses et des Organes des sens, et les zones Hystérogènes des Muqueuses,*" are found numerous observations of hysteric zones in their three sub-divisions, hypno-genetic, lethargo-genetic and spasma-genetic. In six cases he met with spasma-genetic zones, which had their roots in affections of the mucous membrane of the turbinals, hypertrophy being the chief anatomical lesion. Now of the superficial hystero-genetic zones which, according to present day explanation, are considered as a hyperæsthesia symptomatic of the neurosis, one does not know more than that different, distinct parts of the body are met with, which are capable of provoking the aura under a slight pressure, and that if the pressure is increased the attack may become one of violent convulsions. Authors exclusively refer to perturbations in the regions of the senses, but are unable to deduce any therapeutic indication from the reason that those perturbations are considered as nervous. The works of Lichtwitz are in my opinion those which should guide us in the question. These works, as well as my personal observations, demonstrate in the most irrefutable manner:

- (1) The existence of hystero-genetic zones in mucous membranes; and
- (2) That the said zones represent a more important part than that of being simply symptomatic, because their destruction terminates the series of nervous functional perturbations deriving from them. The three cases referred to afford distinct evidence from the moment that it is proved that the hysterical attacks originate from a small zone of nasal mucous membrane, and that they are not repeated after destruction by cautery of that zone, even when one excites the point which was originally the source of irritation. If any doubt should still exist, it is enough to recall the third case in which one had to do with the transposition of the zone from the nose to the pharynx, when I obtained identical results by a similar treatment. The hystero-genetic zones of mucous membranes had already

been considered before the studies of Lichtwitz. Rosenthal, in his "Traité Clinique des Maladies du Systeme Nerveux," had excited hysterical attacks in two patients by touching the mouth of the uterus with the speculum, and Fromque, in his article "Ueber Hysterische Kampfe," mentions a case in which cauterization of the larynx had produced convulsive crises. The very name which one gives to this neurosis is derived from the old belief that the uterus was the cause of the suffering, and it is not wide of the mark to suppose that the vaginal mucous membrane, like that of the uterus, may in many cases be the site of hysterogenetic zones, the irritation of which has given rise to functional disturbances classified under the term hysteria.

The external peripheral hysterical zones are not susceptible of treatment energetic enough to destroy them, and hence the difficulty of confirming the hypothesis by the results of treatment. But in the zones of mucous membrane where it is easy to investigate and treat, the affair is very different. Hence it is especially necessary that our experiences be repeated in order to see if one can arrive at positive results on a subject of such importance. The symptomatic *tout ensemble* is characterized by functional disturbances of various characters, always disagreeable and sometimes serious, so that we should strive to arrive at a satisfactory line of treatment.

How were the crises produced in our patients when the zone was not mechanically excited with the probe? The nasal mucous membrane excessively inflamed, as in all cases of chronic hypertrophic catarrh, and a permanent obstruction of the nasal fossæ, constituted a suitable ground for cold or hot air, dust, tears, etc., sufficient to excite the hysterogenetic zone, and produce the nervous reflex which caused the convulsive seizures.

Now are we able to unite together the classical cases of reflexes derived from the nose with the cases of hysterogenetic zones of the nasal mucous membrane productive of attacks of hysteria? In such a case should we consider it all as a reflex neurosis of nasal origin, and accept all as hysterogenetic zones? In which of the two kinds of classification shall we include the hyperæsthetic zones and reflexes existing in the pharynx and larynx, demonstrated by the cases I have cited as well as by those enumerated by Dr. Ruault? What part is represented by the absorption of the cavernous tissue of the turbinals, as well as by the chronic lesions of the pharyngeal mucous membrane?

We are near the end of the question. According to my opinion there is no difference between the two classes of cases. It is most probable that in all of them one has to do with zones of hyperæsthesia. In these the irritation of the respective nerve fibres is capable of producing—according to the intensity of the irritation, constitution, etc.—perturbations which may excite only one organ or apparatus, or reach a functional disturbance of the whole nervous system, central and peripheral, in its different spheres, motor, sensory, etc. The male sex in such a case would not count for more than the greater resistance offered by their nervous system. Hence the greater opposition in them to loss of energy, and for a similar reason the perturbations are more apt to be limited to a

single origin or apparatus without arriving, as in the female sex, at the intense disorders of the whole nervous system. Certain authors, and amongst them Lichtwitz, have observed phenomena identical with those referred to, and nevertheless believe that the hyperæsthesias of the mucous membrane—the hystero-genetic zones—are not the cause of hysteria, but only a symptom, and that the cauterizations improve the patient by a revulsive action on the nerve centres. This way of viewing the case does not appear to me a logical one, and I do not think we shall arrive by this road at the investigation of the pathology of hysteria. In this view we start from a false point, viz., that of qualifying the disease entirely with the name of general neurosis, a vague term which says nothing with regard to its genesis, etc. And we openly take as a symptom that which might just as well be the cause, judging from the therapeutic fact deduced from the treatment of this so-called symptom.

Pray do not conclude that I wish to affirm absolutely that hysteria is a localized malady, and that the hystero-genetic zones are the sole and exclusive cause of the perturbations which appear at one time in the sensitive sphere, at another in the motor, and again in the psychical. For this, experiments rather than reasoning are required. I have only wished to chronicle a fact which, together with those already cited, might trace out a new path for investigations into the pathology of hysteria. In my opinion it has been proved that the hystero-genetic zones have a preference for the nasal and genital mucous membranes. These are surfaces easily accessible for energetic therapeutic intervention and convenient for observing data, so as to see if the destruction of these zones leads to a cessation of hysterical attacks. In a similar manner one has sometimes succeeded in triumphing over them by uterine treatment, and epileptic attacks have been cured after removal of a vicious cicatrix.

CONCLUSIONS.

(1) It is not exclusively from the nasal mucous membrane that reflex phenomena are produced in more or less distant organs.

(2) The mucous membrane of the pharynx may produce them in the same manner.

(3) The reflex phenomena which may be derived from these mucous surfaces are apt to vary from simple perturbations of one organ or apparatus up to intense disturbance of the whole nervous system.

(4) The mechanism is only a centripetal transmission of the irritation by the respective nerve fibres to the nerve centres.

(5) The anatomo-pathological lesions which may exist in the mucous membranes constitute a permanent source of irritation to the nerve fibres.

(6) Can we consider the zones from which the reflexes are derived as hystero-genetic zones?

(7) Since destruction of these zones is followed by cessation of hysterical attacks, are they not the cause of the characteristic disorders of hysteria, and not simply symptomatic?

(8) Can laryngology or rhinology help by investigation to establish the pathology of hysteria—up to the present unknown?

DISCUSSION ON TUBERCULOSIS.

Dr. SOKOŁOWSKI (Warsaw, founding upon his observations, is of opinion that healing, or at least cicatrization of tubercular process of the larynx takes place under different therapeutic methods wherever the general tubercular process has a tendency to stop in its development, where the organisms on account of the conditions, till now not well known, has a tendency to production of the so-called fibrous form of pulmonary, as well as laryngeal, phthisis.

The author, in his very numerous hospital, as well as private materials, saw improvement, and even cicatrization, thanks to the application of very different local methods (lactic acid, iodol, iodoform, menthol, and recently parachlorphenol. The surgical treatment (curettement) was also applied by the author, often with positive—mostly, however, negative—results. He is of opinion that in cases where the surgical treatment is indicated, the general state being satisfactory, and in presence of the fibrous form of phthisis—there, instead of partial surgical intervention (curettement), the real surgical treatment must be applied, *i.e.*, laryngo-fissure (thyrotomy) with secondary extirpation of all tubercularly degenerated parts. In one case, in hospital practice, touching a phthisical man, aged forty-five, with a considerable stenosis of the larynx, necessitating tracheotomy, the author, together with Dr. Kijewski, a surgeon, performed laryngo-fissure with minute incision of degenerated vocal cords and posterior wall of the larynx. The patient, after two weeks, left the hospital considerably improved, without his canula, and lived about half a year without pain in swallowing. This method, according to the author, merits being applied whenever there occur considerable stenosis of tubercular character requiring tracheotomy. Thus the patient is not constantly obliged to wear the tracheotomy tube. This method might be also applied in cases of dysphagia, produced by great changes of the larynx, general state being satisfactory, where the treatment by means of brushings of lactic acid, etc., does not put an end to dysphagia.

Prof. B. FRAENKEL considers it necessary, in consideration of the views advanced by Dr. Heryng, to state that the surgical treatment of phthisis of the larynx is coming to be generally recognized as a therapeutical method. It is needful, however, to define the indications for surgical interference more distinctly than has yet been done. The master of his subject shows himself by wise limitation.

How little durability there has hitherto been in the views with regard to the treatment of tuberculosis of the larynx is shown by Heryng's remarks with regard to lactic acid. Not long ago there were writers who would have considered it a kind of sin of omission not to have employed lactic acid in any case of laryngeal phthisis, and now Heryng, one of the partizans of lactic acid treatment, states emphatically that lactic acid is only indicated in certain cases. It would therefore be necessary in the treatment of laryngeal phthisis to individualize in each case, and to select judiciously from among the remedies at hand, including surgical measures and also lactic acid. It will be the duty of workers in the

immediate future to lay down more decided indications for the adoption of the different modes of treatment, in order to make the choice less empirical, and to facilitate the appreciation of the general aspects of cases.

Dr. MOURE was able to cite cases of cure obtained by therapeutic means, as well as others obtained from surgical intervention. The most necessary thing, therefore, is to define the forms in which surgical treatment is likely to give good results. In chronic types of the disease one must distinguish the diffuse forms, in which surgical treatment cannot give positive results, especially if the patient is subject to acute attacks. For surgical treatment he preferred the various cutting forceps. For infiltrations he gave the preference to the galvano-cautery or to ignipuncture. Finally, he drew attention to the fact that medical treatment had never caused any accidents, while one cannot say the same for surgical interference. In two recent cases, on account of œdema following curetting, he was forced to perform tracheotomy.

Prof. MASSEI (Naples) said that Schmidt and Heryng should be well pleased to see their method accepted into the domain of science. It is asked whether laryngeal tuberculosis is curable or not, and while all would answer yes, either after treatment or consecutive to a simple tracheotomy, he would simply state that there are cases with serious laryngeal lesions, and others with limited lesions, which do well, independently of the state of the lungs. He did not criticize curetting, although even in the cases where the process is limited one cannot be certain of having scraped everything. He did not criticize it for other reasons, not being able to deny the grand statistics of Heryng. In conclusion, he drew attention to the good effect of phenol sulphoricinate.

Dr. EGIDI (Rome) said that tracheotomy in tubercular laryngitis is preferable to all other surgical treatment, because it gives complete repose to the larynx, and prevents the inspiration of tuberculous products and their dissemination in the lungs. In three grave cases of stenosis he performed tracheotomy, and saw the local laryngeal form disappear as if by magic.

Dr. GAREL (Lyons) was greatly pleased with the works and results of Gouguenheim and Heryng, but believed that beneficial results could be obtained without surgical treatment. He recalled his statistics on the encouraging results obtained by treatment pure and simple; his statistics had been submitted to the French Society of Laryngology. Laryngeal tuberculosis may get well like pulmonary tuberculosis; cases of considerable arytenoid infiltration are cured without the least treatment. However, he believes strongly in tracheotomy, when it is indicated by suffocative attacks. In his opinion the chief factor in prognosis is the state of the patient's digestive tract. He laid stress on good diet.

Dr. TRIFILETTI (Naples) had been led by his clinical experience to consider phenol sulphoricinate, if not a specific, at least an excellent remedy for tubercular laryngitis, especially in the form limited to the cords. The phenol, dissolved in sulphoricinate of soda in the strength of twenty to thirty per cent. (a solution perfectly tolerable on account of the excipient), acts as a potent antiseptic, tending to modify and cicatrize.

He attributed to Dr. Ruault the merit of having made known this remedy, which represents a victory in the treatment of laryngeal tuberculosis.

Dr. RUAULT had nothing to add to the efficacy of phenol sulphoricinate, except something on the large question of the surgical treatment of laryngeal tuberculosis. This treatment cannot pretend to be radically curative, but to facilitate spontaneous healing, and provoke fibro-sclerotic processes. Finally, he did not place himself amongst the partizans of the surgical treatment of tuberculosis of the larynx.

Dr. SAJOUS (Philadelphia) did not share Dr. Gouguenheim's opinion, and held that deep scraping, which is apt to be followed by œdema, is not always necessary.

Dr. MADEUF agreed with Dr. Sajous, and especially recommended inhalations through the nose of beech creosote in doses of sixty drops a day. He attributed satisfactory results to it.

Dr. MASUCCI said he had obtained encouraging results by the surgical method, and believes that it should be adopted not only in limited lesions, but also in diffuse ones. He said that tracheotomy especially had its indications.

The question was further discussed by SOKOŁOWSKI, SCHMIDT, GLUZENISKI, FRAENKEL, LUBLINER, CHIARI, and HOPMANN.

Prof. SOKOŁOWSKI recommended complete removal of all diseased parts of the larynx, even if laryngo-fissure is needed for the purpose.

Dr. SCHMIDT reviewed the various methods, recommending strongly curetting, then early tracheotomy, and, finally, laryngo-fissure, with extirpation of the whole of the diseased parts, followed by plugging with iodoform gauze, but, of course, only when the lungs were comparatively little involved. He referred to the results obtained from operations on tuberculous joints.

Prof. CHIARI laid greatest stress upon the general treatment, and adopted surgical methods only when stenosis and dysphagia occurred in severe cases. In slight cases he removed any easily accessible out-growths, especially when they affected the voice. For this purpose he employed the curette, the double curette, and very frequently electrolysis, which he recommended very strongly. The choice of method depended on the characteristics of the special case. In cases of stenosis he had tried tubage (with Schroetter's instruments) and intubation frequently with unsatisfactory results. Tracheotomy generally brought about considerable relief. Laryngo-fissure, with extirpation of the diseased parts, appeared to him to come very seldom into the question, just as was the case with resection of tuberculous joints, which surgeons now very seldom practised.

Dr. SAJOUS spoke in praise of creosote.

Dr. TRIFILETTI (Naples) read a paper (*vide supra*) on *Phenol Sulphoricinate in the Treatment of Laryngeal Tuberculosis*.

DIAGNOSIS and TREATMENT of SUPPURATIONS of the MAXILLARY SINUS.

By Dr. J. GAREL (Lyons).

Great divergence exists among different authors upon this subject, and it is difficult for the practitioner to enlighten himself among so many and contradictory opinions. The two important points to be elucidated are the establishment of a precise diagnosis and the most suitable method to adopt to obtain a cure. In the first place we shall deal with diagnosis.

DIAGNOSIS.

Generally, from the first information furnished by the patient it is allowable to suppose an empyema of the sinus. The patient comes to us, complaining of a coryza which has lasted several months or years. This coryza has the special feature that at certain times during the day, or at fixed hours, so to say, there occurs a more or less abundant flow, oftenest from only one nostril, and it appears to be increased by lowering of the head. This flux is purulent and of a fœtidity pretty well marked, and perceived by the patient himself. In the morning, on rising, the patient experiences a disagreeable sensation in the throat, due to the pus which has passed into it from the naso-pharynx.

We need not occupy ourselves with the other accessory signs—for example, the neuralgias which complicate the situation—because these simple signs ought to suffice to direct our diagnosis in the proper direction. We admit, however, that these signs are not pathognomonic of suppuration of the maxillary sinus, and may appertain to a sinusitis of quite different character, but we have in them enough evidence to suspect a sinusitis. It remains to be determined whether it is a maxillary sinusitis.

The first sign which teaches us anything is the presence in the middle meatus of a drop of pus. But this pus, when it exists, may proceed from the ethmoidal cells or the frontal sinus. Sometimes the middle meatus is normal and the pus completely absent. How then may we recognize there the presence of pus in the antrum of Highmore? The best means consists in electric transillumination after Heryng's method. The value of this method has been much discussed. Along with numerous authors, we accord to this illumination an exceptional value, and we make bold to affirm that it is the principal sign to definitely establish the diagnosis.

If this method has been declared by some practitioners to be *utile*, it is because they have applied it in a wrong manner. We must not believe that in every case we shall obtain a complete opacity on the cheek of the affected side. There are in various persons differences in the thickness of tissues, and there are also differences of density in the purulent collection; but what is always obtained is a distinct difference in the transparency of the two sides. There is another essential point in our opinion, which is, that we must not believe that the opacity will always occupy the entire cheek. The two cheeks often appear equally illuminated. The true characteristic opacity only exists towards the orbital notch.

The presence of pus is then announced by the existence of a dark crescent immediately under the inferior eyelid. We have up to now only met with one doubtful case, and this was at first, when we were only imperfectly acquainted with the manual method of procedure.

The opacity relegates itself, so to speak, to the superior portion of the cheek in a more restricted manner the higher the state of incandescence of the lamp employed. Thus when there exists any doubt as to the appreciation of the opacity, we must, as Lermoyez has well pointed out, lower the intensity of the light by means of a rheostat, and we shall then see the opacity, at first reduced to the minimum, extend lower down on the cheek. A too great brightness is, therefore, unfavourable for the production of this important sign. A lamp of low voltage—six to eight volts—is quite sufficient for such an experiment. Davidsohn soon added to this sign another objective one which coexists with opacity of the cheek, the absence of illumination of the pupil on the affected side. If we examine the pupils of the patient under investigation we perceive a small area of reddish brightness which illumines the ocular camera obscura. This sign is difficult to appreciate because, the patient being placed in a dark room, the very contrast furnished by the illumination of the face makes it difficult to find the pupil.

We had no acquaintance with Davidsohn's work at the time when it occurred to us, after an experiment on our own person, to ask patients as to the luminous perception experienced through the inferior wall of the eye. For this purpose we made frequent interruptions of the light, and the patient replied very clearly that he perceived little flashes of lightning in his eye. The luminous perception was distinct on the sound side. On the affected side, on the contrary, the subjective luminous perception was in most cases absent; more rarely it was feeble in comparison with the other side. Let us note in passing that the absence of luminous perception no longer exists after a treatment which has resulted in cure. As regards the opacity it disappears less quickly, the lining of the sinus maintaining, probably, for some time longer a certain degree of opacity which screens off the luminous rays.

We have practised transillumination with success thirty-seven times in our cases of empyema, fifteen times before thinking of inquiring as to the perception of light, and twenty-two times since we have systematically studied this sign. It is evident that in cases of double empyema the sub-palpebral opacity is likewise double on pus in the antrum of Highmore. What remains to convert our presumption into complete certainty? We must draw some pus out of the antrum.

Lichtwitz has within recent years declared that the most simple and rapid method of confirming the existence of pus is to puncture the antrum through the inferior meatus by means of a fine exploratory trocar. Without wishing to look upon this as a surgical operation we systematically reject it as being quite useless in the majority of cases. We fail to understand why, in order to extract pus from a cavity which has a natural opening, it should be necessary to start by making an artificial one. It cannot even be claimed that there is a necessity for puncturing the lowest part because it is only a simple exploratory puncture.

and further on we shall show the little value of the opinion of those who call for intervention through the lowest part from the point of view of treatment. There exists a natural orifice; let us try to pass in the first place by this. What is the good of a wound, however small, in order to prove the existence of suppuration?

We know well that some will profess that the natural orifice is inaccessible, that it is deeply hidden, that the middle meatus is too narrow, that the hypertrophied middle turbinal offers a serious obstruction, etc., etc. All the objections fall to the ground in the face of the facts. Without doubt they have some grounds, but only in exceptional cases. We admit that these exceptions may be relatively frequent, but as long as the natural orifice is approachable in the majority of cases, it is the first route to explore for the purpose of drawing pus from the antrum.

Out of forty cases of empyema, of which four were bilateral, we have been able to irrigate the sinus twenty-eight times through the natural orifice. We will even add to this number a recent case on a fair way to recovery by this means. We do not pretend to say that this irrigation is always effected with the greatest facility, any more than the partizans of puncture by the inferior meatus would say that the latter is always easy. In any case, by proceeding methodically, it will be found that irrigation by the natural orifice is much more easy than some authors think. The catheter which we use has been constructed precisely after the exact data of Heryng, and we know that with other catheters supplied by certain instrument-makers this catheterism is impossible. Before introducing the catheter, cocaine must be applied in the middle meatus; the proceedings will thus be painless, and above all the width of the meatus will be greatly increased through the retraction of the mucous membrane. The position of the orifice may be made out by means of a probe-pointed sound of the same curvature as the catheter, in order to make out if the orifice is accessible. The catheter is introduced with the point turned downwards in the direction of the middle meatus; then, as soon as we have passed the head of the middle turbinal we turn the bent extremity of the catheter outwards towards the hiatus semilunaris, which we explore with great delicacy so as not to injure the mucous membrane. At a given moment we feel that the catheter engages itself in a little cavity, and that it becomes then impossible to make it move backwards and forwards and *vice versa*; the first catheterization may require a little time, but we soon become familiar with the situation of the orifice in each patient, and from the second irrigation onwards we can introduce the catheter without illumination or speculum.

When the catheter is properly placed we connect it with an English Higginson's syringe and inject into the sinus a tepid solution of boric acid. If we have really got into the sinus the fluid causes, in penetrating, a characteristic hydro-aerian sound which is never perceived when the catheter is still merely in the nasal cavity. We have soon confirmation of the catheter being well placed by the issue of pus having a repulsive odour which comes out mingled with the boric solution, and which has sometimes the appearance of a caseous magma. We must further draw attention to the fact that if the catheter has not entered the sinus the

liquid, instead of flowing out by the diseased nostril, does so by the opposite one, or finds its way into the buccal cavity, producing a certain amount of suffocation.

The diagnosis being established in a definitive fashion, we have only to set the treatment going.

TREATMENT.

To what method of intervention should we limit our choice in order to cure an empyema of the sinus? Here again, at the risk of incurring criticism, we declare that we have only to continue what we have done for diagnosis—we return to irrigation by the natural orifice.

It is well known that the various methods of treatment can be reduced to two principal ones—the nasal and the buccal. The nasal include several proceedings and irrigation by the natural or accessory orifice, puncture of the external wall in the middle meatus, and lastly perforation of the external wall in the inferior meatus. The first and the last of these are the only ones employed.

The buccal can be attacked in various ways—extraction of a tooth, followed by perforation of the alveolus, inter-alveolar perforation without extraction, and lastly extensive opening in the canine fossa.

From this short statement it will be seen that there is no want of methods for penetrating the sinus, but it is necessary to make a judicious choice of the method to employ. We must advance from the simple to the more complicated: obviously the simplest method is the one which consists in making use of the existing orifice without creating the slightest wound. Any practitioner who cares to proceed methodically will convince himself that the ostium maxillare is not so difficult to discover when we are provided with a catheter of suitable curvature and calibre. As we have already said, we have treated forty patients affected with empyema of the maxillary sinus. In four cases the lesion was bilateral, which brings the total number of sinuses treated up to forty-four. We have been able to reach the sinus by the natural orifice twenty-eight times, that is to say, in a proportion of sixty-three per cent. of the cases treated. In six only we have had to resort to another method, the empyema resisting a short series of irrigations.

It has then been necessary to practise puncture through the inferior meatus by means of Krause's trocar, to enable the patient to irrigate for himself during several months. There remain, therefore, twenty-two cases treated and cured exclusively by the natural orifice. In two cases, nevertheless, we have been unable to affirm absolute cure, having omitted to mention the result of treatment in our case papers. Recovery has always been rapid, as the treatment has lasted on an average less than eight days, with one irrigation a day. In three cases only it lasted fifteen days, and in one twenty-one. On the other hand, we have obtained five cures in three and four days.

If we have been obliged to renounce the natural orifice six times, it is because irrigation was not sufficient as in other cases to put an end to the purulent secretion in eight or ten days. Therefore, out of these six cases, five could not be cured in spite of numerous irrigations practised

through the most dependent portion of the cavity. A single one was cured after three or four washings, but in this case the natural orifice was very difficult to probe, we could only get into the sinus in a very round-about way ; we thought, therefore, that we could clear an easier way by the inferior meatus.

All this proves that there exist two kinds of empyema—those which heal rapidly, and those which resist all attempts by irrigation. These last are those in which there probably exist granulations requiring curetting before the disappearance of the suppuration is brought about. On the other hand, we can affirm from our statistics that it is absolutely useless to try to penetrate the sinus by the most dependent part because the cases which have resisted irrigation by the natural orifice have resisted it equally when practised through an artificial opening made in the inferior meatus. It is a mistake to think that the sinus cannot be thoroughly washed through the natural orifice. We take care from time to time during the process to make some injections with water and air mixed ; we manage to cleanse the cavity completely, and towards the end of the washing the fluid runs out quite limpid. From the first washing there comes away a very fetid purulent fluid, more rarely caseous. From the third one we get nothing but a magma of gelatinous muco-pus extracted in a mass. This mass diminishes in volume at each washing, and in a few days disappears completely. The cure is then definitive.

On the whole, we maintain that in the presence of an empyema of the antrum we ought always to try in the first instance irrigation by the natural orifice.

But if on account of a special configuration of the nose, or a particular position of the orifice of the sinus, we cannot employ the natural passage, we must resort to some other procedure. It is here that we meet the question between the alveolar opening and a nasal opening in the inferior meatus. The partisans of the alveolar or inter-alveolar openings are very numerous. For our part we have no hesitation in practising perforation by the inferior meatus, and this for the following reasons :—The patient is not obliged to submit to extraction of a tooth, it may be to sacrifice a sound one ; in addition, the thickness of the outer wall of the nose is ordinarily much less than that of the alveolus. Lastly, if the case is obstinate, the patient experiences less annoyance in performing the daily irrigations through the inferior meatus than through the alveolar opening. The latter exposes him at any time to the entrance of pus into the mouth, and further it is necessary, especially during meals, to place in the orifice an obturator to prevent the penetration of morsels of food into the maxillary cavity. It is further not difficult for the patient to learn to introduce the canula through the inferior meatus. We have even been able in an exceptional case to teach a skilful young man to perform irrigation for himself through the natural orifice ; the empyema had lasted fifteen years, and was cured in three months.

In total, the nasal route offers great advantages over the alveolar one. We only use the latter in those cases in which the necessity for extraction of a tooth enforces itself absolutely. In fourteen cases, having been unable to catheterize the maxillary opening, we have been obliged to

puncture through the inferior meatus. We employed Krause's trocar, but reduced its diameter by one half, in order to make a wound of less importance. Three times we made the perforation by means of the galvano-cautery, according to Moure's method. Out of fourteen primary punctures through the inferior meatus we obtained certain cures in twelve; one case resisted irrigation, and, as regards the other, it left the hospital before having undergone a sufficient course of treatment. It can be seen, therefore, that treatment through the inferior meatus equally gives good results, and that it is decidedly indicated when there exists an obstacle to irrigation by the natural orifice.

There are, however, rare cases in which the natural orifice is inaccessible and in which the thickness of the external wall of the inferior meatus offers serious resistance. We have met with three cases of this kind. One of them is not yet under treatment; the two others have been treated and cured by the alveolar route. In the first case the operation was performed by Dr. Martin, the eminent dentist in Lyons, by means of the drill. The second was operated on by us by means of a drill driven by an electric motor. The perforation made in this way is rapid and painless. It is needless to add that the point of the drill must be directed a little inwards and backwards. We must, however, repeat—the same as for puncture through the inferior meatus—that we only employ it in the last place after the failure of the other methods.¹

As regards the opening in the canine fossa, we have had it made in one case only by our colleague, Dr. Gangolphe. It was in a patient whose antrum we had irrigated for some time through the natural orifice without success. Irrigation, repeated during a number of months by the patient through the inferior meatus, failed equally. We only resorted to the large opening in the canine fossa to practise stuffing with strips of iodoform gauze, according to the method of Chiari. This gave no good result; the patient disappeared, and we have not been able to have recourse to the curette.

Over and above the cases treated we have met with forty more in which we had simply the opportunity of making the diagnosis, the patients having stayed away after the first examination.

We shall conclude with some remarks on the collection of cases. The frequency of the affection is nearly equal in the two sexes. The majority of the cases were in persons between thirty and sixty years old—we met with only one under twenty. This is easily understood if we admit that a dental origin is much the most frequent one. Origin in the nose, according to our statistics, is much more rare; otherwise the etiology is very difficult to appreciate. Three times only the empyema was associated with nasal polypi, and five times with polypoid hypertrophy of the middle turbinal. Let us note also that in some exceptional cases there was an absence of ozæna. In four cases, with great fœtor, the pus was caseous. In four cases only there was a purulent fistula at the level of the root of a tooth.

The onset of the affection in our various patients dated ordinarily

¹ Lately we practised for the third time puncture with the drill in a patient whose empyema had resisted irrigation by the natural orifice.

from more than a year back, and often from several years. We have met with empyemas dating even from fifteen and seventeen years. We wish to insist upon this point—that the long duration affords no criterion for the prognosis, as some recent cases have proved more rebellious than some of the older ones. Nevertheless, cure of empyema of the maxillary sinus is fairly frequent, as out of forty-four sinuses treated by irrigation, we have only in eight cases been unable to note a definitive cure. On the other hand, we have had the opportunity of observing two cases of spontaneous recovery without treatment.

CONCLUSIONS.

If we now resume the data contained in this paper we shall adopt the following conclusions :—

1. Electric illumination by transparence is the best supplementary proof when we suspect the existence of an empyema of the maxillary sinus from the ordinary symptoms complained of by the patient.

2. The absence of subjective luminous perception on the affected side established by our method fixes definitively the diagnosis, if there remain any doubts in the appreciation of the opacity of the cheek.

3. The proof of the existence of pus by exploratory puncture through the inferior meatus then becomes useless for the confirmation of the diagnosis.

4. This proof is ordinarily obtained in the majority of cases by means of simple irrigation through the natural orifice of the sinus.

5. Irrigation by the natural orifice is at the same time the most expeditious therapeutic method, and the first that ought to be tried. Cure is obtained often in less than a week.

6. In the choice of method it is useless to try to penetrate by the most dependent part, because, as our statistics show, cases which resist irrigation by the natural orifice are equally rebellious to irrigation practised through artificial orifices in the most dependent parts.

7. When catheterization by the natural orifice is impossible, we must have recourse to an artificial opening to enable the patient to irrigate for himself as may be required for several months. In this case our choice must be fixed on the inferior meatus, for the reasons laid down above.

8. Alveolar perforation ought only to be thought of in the last instance, when we cannot use the other methods. We make an exception in the infrequent cases in which the extraction of a tooth forces itself on us before any other intervention.

9. Lastly, opening by the canine fossa and curetting are to be reserved exclusively for rebellious cases which have resisted all treatment by irrigation.

10. As regards the nature of the liquid to be employed, we would add that boric acid suffices in all cases, and that all the other substances, carbolic acid, iodoform, etc., have given us no better results.

**REPEATED PERFORATIONS of the CRICO-THYROID
MEMBRANE for Treatment by Sprays and Vapours in the Larynx,
and Interstitial Intra-pulmonary Injections.**

By DR. ROUSEL.

In this paper the author explained that, in order to convey a medication directly into the deeper parts of the larynx and the subglottic region, he was in the habit of perforating the crico-thyroid membrane with one thrust of an exploring needle (five centimetres long), and then injecting with a syringe (capacity five cubic centimetres) either pilocarpin or strychnine into the glottic tissues, which are especially swollen with tubercular œdema. As a topical modifier of diseased tissues, he employed arseniate of strychnine, hypersulphite and phosphate of soda, or a solution of pure carbolic acid in almond oil. For direct pulmonary absorption, he advised spraying the above-mentioned remedies into the trachea, or oily solutions of menthol, thymol, etc. Dr. Roussel assured the section that the perforation of the crico-thyroid membrane was not difficult, did not disturb the patient very much, and left no trace whatever.

**On the PATHOLOGY and THERAPEUTICS of so-called
LARYNGITIS HYPERTROPHICA (Hypoglottica) CHRONICA.**

By DR. SOKOŁOWSKI (Warsaw).

Abstract.

The writer had seen six cases within recent years among the rural population of Poland. Stenosis was always due to subglottic growths, and dilatation by means of Schroetter's tubes did little good. By laryngofissure, on the other hand, he was generally able to gain access to the growths, and by removing them to cure the disease. As a rule, the patients were able to do without tracheotomy tubes at the end of three weeks. Recurrence did not take place.

Microscopical examination revealed rhinoscleroma cells in two cases, rhinoscleroma bacilli in one; beyond these, hypertrophy of the epithelium, the connective tissue, and frequently the glands.

As regards the etiology, it was several times attributable to typhus (? typhoid). No connection with Stoerk's blennorrhœa could be made out. From all this, Sokolowski came to the conclusion that, besides rhinoscleroma bacilli, other exciting organisms can give rise to such hypoglottic growths, and especially the typho-bacilli.

Dr. SCHADEWALDT asked the lecturer what results had been obtained in the operation cases quoted, as regards the functions of the larynx (1) with regard to the voice, (2) with regard to the mobility of the vocal cords, as observed by laryngoscopic examination.

Dr. SOKOŁOWSKI, in reply, mentioned that in the discussion he had

not treated of the well-known typhoid perichondritis, where laryngo-fissure has no object, but of the typhoid subglottic hypertrophic forms. Typhoid could only be regarded as a specific agent, which, like rhinoscleroma, could give rise to specific infiltration.

ELEVENTH INTERNATIONAL MEDICAL CONGRESS IN ROME.

SECTION OF OTOLOGY.

(Continued.)

A NEW ACOUMETER.

By Dr. LEVY (Hagenau).

Gentlemen,—The physiologist Carl Vierordt, in his work on sound perceptions, finds fault with ear specialists for making use of such unsatisfactory methods as the ear and the voice in estimating perceptions of hearing. He constructed a phonometer for physiological investigation, the principle of which consists in dropping small shot on a zinc plate, the height from which they fall varying, and accordingly the intensity of the sound produced by the fall. For the purpose of measuring our delicate hearing perceptions, however, Vierordt's phonometer is unsuitable for many reasons. The intensity increases rapidly with the slightest alterations in the height from which the shot begins to fall, and the differences must be read off by means of a lens. (1) Besides, it is very difficult to procure shot absolutely alike in form. The experiment cannot be continued for any length of time with the same ear without interruption, it being necessary that the ear should first get accustomed to the perception. Finally, when a solid body falls upon a plate and remains on it for some time, alterations in the intensity take place as long as the noise continues.

Four years ago, when working in investigations of criminal pathology, wishing to experiment on the hearing of criminals, I constructed—but without knowledge of Vierordt's phonometer—this acoumeter, which is arranged for the practical and most convenient examination possible of a great number of people, and which should give the most exact comparative figures possible. With regard to the apparatus which our master A. Politzer presented to us, it would have been difficult to get the exact distance of the phonometer from the ear under examination, and also the variations of normal distance of hearing would have been too small.

In the case of my apparatus, a drop of water weighing one decigramme falls on an inclined metal plate, from which it runs off at once. The metal plate rests on felt, which immediately damps the sound, so that with medium intensity not the slightest indication of a "*ton*" is given. The drop falls from a vessel which can be moved up and down a graduated

rod. With this instrument the ratio of amount of sound to average strength is fairly exact : that is, the rapidity of outflow is proportionate to the height of fall. (With Vierordt's phonometer the sound is rather proportionate to the root of the height of the fall, which also complicates the investigation.) The ear under examination is placed against this movable window, which is padded all round, the distance of which, from the point where the drop falls, being in most cases 25 centimètres. (In high degrees of deafness, the distance is lessened to 3 centimètres.) The height of the fall can be increased to 40 centimètres. Conduction through the bones is excluded by means of damping on the under surface of the plate and also the resonance, which is of importance.

A good ear up to the age of fifteen can hear at 50-60 mill. In adults very good hearing can perceive the sound at 60-80 ft. From forty years upwards hearing decreases, and a man of sixty averages only 100-120, with otherwise a quite normal auditory organ. Between 120-200 there is slight deafness, and from 200-300 medium deafness.

In practice the instrument has this advantage that it can also show considerable differences in higher degrees of deafness, and further that it indicates the effect of therapeutic measures when these are not pronounced.

In making the examination a considerable strength is employed at first, and then gradually reduced to the utmost limit, when the sound can only just be perceived.

Two drops in a second are allowed to flow out : it is important to bear this in mind, because if the drops run out rapidly the sounds are heard more easily : if too rapidly, on the other hand, after-perceptions arise.

The height of the outflow in the vessel can be read upon the graduated rod. The variations on different days are extremely slight in normal hearing.

I need hardly say that this instrument only applies to sounds transmitted through the air.

I have made about six thousand examinations with the instrument, of which more than three thousand were with school children.

The instrument can be had at a moderate price from Mayer, instrument maker, in Strasburg, and will cost about forty marks.

DEMONSTRATION ON THE NASAL SINUSES.

By Prof. COZZOLINO (Naples).

Prof. COZZOLINO showed a photographic atlas for the study of the anatomy of the accessory cavities of the nose, and a comprehensive set of instruments adapted for the carrying out of the surgical methods requisite for their treatment.

On the TREATMENT of SYPHILIS of the INTERNAL EAR.

By Dr. CAMILLO POLI (Genoa).

The treatment of labyrinthine affections is frequently followed by want of success. If there are some cases in which treatment can sometimes bear fruit, it is those of lesions due to syphilis, acquired or secondary. Such results, however, are subordinate to conditions which are chiefly dependent on the gravity of the form of the disease, the epoch in which it appears, and the method of treatment instituted. Amongst the cases which have fallen under my observation I have taken notes of five, because in these the diagnosis of acquired syphilis, with secondary manifestations in the internal ear, was manifest, both from the history and the objective examination. They concerned individuals between twenty-two and thirty-five years of age, in whom the aural manifestation appeared at a period varying from four to eight months from the injection. The classic phenomena—attacks of vertigo and rapidly progressive deafness—were more or less manifest in all. The period in which they came under treatment varied from a minimum of twenty days and a maximum of about one year. The treatment adopted was a combination of a specific cure with more or less prolonged employment of injections of pilocarpin, as recommended by Prof. Politzer. The result obtained varied. In one case (the most recent) we obtained an almost complete cure, if I may so qualify an improvement of hearing so remarkable as to make the watch audible at fifty centimètres on one side and thirty centimètres on the other, accompanied by a complete disappearance of vertigo. With regard to the other cases, in two there was a more or less remarkable improvement, and in two no modification of the phenomena presented at the period when they came under observation.

With regard to the effects of the use of pilocarpin, I would observe that, as it is always difficult to weigh the clinical value of a medicament, this task is more difficult in syphilis, where the phenomena tend of themselves to improve in so far that the vertigo disappears, the tinnitus diminishes, while, on the other hand, the deafness either remains stationary or gets worse. I am of opinion that, in the cases in which improvement took place, this could not be positively ascribed to the use of pilocarpin—still less so in the case with a good result, which I attribute particularly to the effects of specific treatment in the form of injections of calomel.

The author then discussed the employment and rapid results of this medicament, which he considered better than other mercurial preparations.

Dr. GRADENIGO remarked that, in the treatment of syphilis of the ear, one must in turn have recourse to various therapeutic agents, such as iodine, mercury, and pilocarpin, because, as a rule, the treatment has to be continued some time.

Dr. FICANO believed that injections of calomel were to be preferred in syphilis of the ear, because the action was more energetic and prompt. With regard to the point brought against injections of calomel—*i.e.*, that

they produce suppuration—the majority of syphilographers agree in denying it. Prof. Mannino, of Palermo, has made innumerable injections of calomel without ever producing suppuration; he, however, adds to the solution a few drops of simple distilled water. The injections should be made, with all the usual precautions, every ten to fifteen days.

Dr. POLI had never found suppuration from injections of calomel. He shared the opinion of Prof. Scarenzio on the method of action of the remedy, and invited his colleagues to adopt it whenever they required an energetic and prompt remedy in aural affections.

CONCLUDING ADDRESSES.

Prof. DE ROSSI: Most esteemed colleagues,—The order of the day being exhausted, I declare the Section of Otology of the Eleventh International Congress to be closed. I owe you, my dear and illustrious *confrères*, my warmest thanks for the great honour you have conferred on me by nominating me your President. I know that my nomination is not due to any special merit that I can boast of, but to your kindness and friendship for a son of Italy, a country you esteem and love. In taking this chair and measuring my own power, I feared that I could not satisfactorily fulfil the difficult task. Now, however, I am delighted to find that my work has been easy and pleasant, thanks to the efficacious assistance of the illustrious honorary presidents, of the active and intelligent secretaries, and the goodwill of all the otologists here present. The considerable number of papers presented attest the extraordinary progress of our science.

The animated discussions and the enthusiasm aroused by some of the communications of the most illustrious masters will shed greater light on our studies, and add fresh laurels to their authors.

Honoured colleagues! You will soon be returning to your homes. Remember, and remind your children and your friends, that the Italians have welcomed the foreign scientists as representative of their countries, and are more secure of that peace which Italy so much requires, and which is here sealed in the fraternal embrace of science. *Valète!*

Prof. POLITZER, speaking in fluent Italian, said: In the name of my compatriots I feel the duty of thanking our illustrious President for the devotion and impartiality with which he has directed our sittings, and his care in satisfying the members of our section. At the same time I would offer my thanks to our eminent colleague, Prof. Gradenigo, for his indefatigable work in translating the communications, and so facilitating the appreciation of the subjects discussed. Finally, our gratitude is due to the excellent secretaries, Drs. Ferreri and Avoledo, who have devoted themselves to their task without interruption, so that we shall all be able to study at home the interesting communications presented.

CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.

"New York Med. Journ.," June 23, 1894.

Dr. F. H. BOSWORTH, in opening the discussion, dealt with *Ethmoidal Disease*. He remarked that in cases of suppuration of the mucous membrane lining the ethmoidal cells an opening into each of the affected cells was requisite. As this, however, was practically impossible, the treatment should consist in breaking down the partitions between the cells, and so in throwing the whole into one large cavity.

Ethmoidal disease produced various symptoms, such as a watery discharge from the nose, sneezing, neuralgia, asthenopia, etc. Rhinoscopic examination during the inflammatory stage of the disease would show the middle turbinated body as a round mass, encroaching more or less upon the middle meatus. Where there existed a "dropping into the throat" the suspicion would be that the posterior ethmoidal cells or the sphenoidal sinuses were implicated. Clinically, the appearances presented by the middle turbinated body and its immediate surroundings were of the greatest possible value.

Dr. J. H. BRYAN, in discussing *Empyema of the Maxillary Sinuses*, remarked upon the very frequent association of carious teeth and antral suppuration. The cavity should be opened at its most dependent part and room allowed for the insertion of a good-sized metallic drainage tube. The cavity should then be frequently washed out with some mild antiseptic lotion, and, according to his experience, the simpler and less irritating the lotion the more quickly would suppuration subside.

Dr. J. N. MACKENZIE, in speaking of the various methods in vogue for opening the sinus, remarked that the removal of the middle turbinated body did not seem to him justifiable so long as other methods were at hand. The opening of the antrum from the inferior meatus was at times attended with severe hæmorrhage. An opening into the antrum through the canine fossa should only be attempted where there were new growths, or where the walls of the antrum were unusually thin. The advantage of gaining an entrance through the socket of a tooth was that perfect drainage was secured while affording a counter point of drainage through the nose.

Dr. JOHN ROE remarked that acute affections of the sinuses rarely required surgical interference. If the disease was not of long standing, he advised commencing treatment by means of injections through the natural passages.

W. Milligan.

REVIEWS.

Sturmann (Berlin).—*Klinische Geschichte der Pachydermia laryngis*. ("Clinical History of Pachydermia of the Larynx.") Prize Essay of the Berlin Medical Faculty. Berlin: Karger. 1894. Sixty-nine pages.

FOR some years pachydermia, only described in some nearly forgotten publications, has obtained a great interest for laryngologists; therefore a short and complete history of this affection, in which all existing publications are mentioned and described, is a valuable work. The author adds eighteen cases of his own observation from B. Fraenkel's clinic. He reviews the anatomy of the disease described by different authors; then treats of the etiology, consisting of chronic inflammatory processes more often observed in men (of eighty-eight cases, only five were observed in females), in most cases between the ages of thirty and fifty, rarely in infants. The disease is sometimes combined with tumours and tuberculosis. Then follows the description of the laryngoscopical aspect of diffuse and circumscribed pachydermia, and of the subjective symptoms. The process is a very chronic one—recurrences sometimes occur after operations. Ulcers observed in such cases are usually caused by other affections. Malignant transformation is a very rare event. In characteristic cases diagnosis is very easy; in non-characteristic cases, especially in the diffuse forms, papillomata, lues, cancer and tuberculosis may confuse it. The prognosis is not favourable as to complete recovery, but the disease is without influence upon life. The diffuse form must be treated like chronic laryngitis, and also by the internal administration of iodide of potash. Pachydermic warts may be operated upon by forceps or galvano-cautery.

Michael.

Schnitzler.—*Klinischer Atlas der Laryngologie und Rhinologie*. ("Clinical Atlas of Laryngology and Rhinology.") Part VI. With thirty-two Figures, four chromo-lithographic Plates and eleven Woodcuts in the Text. Wien: Branmüller. Forty-two pages.

THE two collaborators (Arthur Schnitzler and Hajek) of the deceased writer complete the last work of our late colleague Prof. Schnitzler. The sixth part of his atlas has now appeared, and with the seventh, which is promised in a short time, the atlas will be completed. The text treats of lupus, lepra, scleroma and the laryngeal affections of acute infectious diseases, traumata, foreign bodies, stenoses and their treatment. The plates are interesting copies of tuberculosis, syphilis, benign neoplasms and traumata of the larynx.

Michael.

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THE
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THE PREVENTION OF DIPHTHERIA.

IN dealing with diphtheria more than any disorder would the wisdom of the old adage, "prevention is better than cure," be exemplified. Indeed, we have no "cure," no specific remedy, no definite lines of treatment of the disease itself, but only of its symptoms as they arise. Nearly every constituent of the pharmacopœia, every chemical element has been in turn hurled against diphtheria, and a vast amount of printers' ink has been wasted in the promulgation of treatments and cures by one or the other drug. The amount of literature devoted to the treatment of diphtheria each year is enormous, and all bears evidence to the fact that we are still groping in the dark as to the therapeutics of this disorder. It is also a certain evidence of the fact that we have been for long groping about with "the wrong end of the stick," in the absence of a proper knowledge of the etiology of the disorder. But thanks to the labours of Klebs, Loeffler, Roux, and Yersin, and many others, we have now no excuse of this kind, and the etiology of diphtheria is well enough known to enable us to deal with the disorder properly, viz., upon an etiological basis. Without such knowledge, we are confronted with many difficulties of diagnosis—for the accurate diagnosis of many of the obscure forms of diphtheria is a matter of the greatest difficulty, and there is no doubt that while a great many cases of "sore throat" which are reported to be diphtheria are not diphtheria at all, there are very many cases occurring daily in the experience of practitioners in which diagnosis fails in the other direction. Every opportunity is thus afforded for the spread of the disorder, which by more accurate methods of diagnosis and means of prevention might be limited: for diphtheria is a disorder

which is ever with us, and the increase of which has agitated medical minds greatly of late.

The matter formed the subject of a discussion at the British Laryngological Association meeting of July 13th last, at which a paper was read by Dr. Norris Wolfenden upon the diagnosis and nature of inflammatory disorders of the tonsils and their relation to infectious diseases—especially diphtheria—and in which the reader of the paper strongly insisted upon diagnosis founded upon bacteriology as essential and necessary in all these forms of obscure sore throat, and in such apparently simple forms as so-called follicular tonsillitis, which is very often proved to be diphtheria. The outcome of this discussion was the formation of a committee, consisting of Dr. Macintyre, Dr. Wolfenden, and Mr. Lennox Browne, who were deputed to draw up, on behalf of the Association, a petition, to be presented to the Local Government Board, urging the importance of appointing stations throughout the country where bacteriological examination of all suspected cases could be rapidly conducted, so that means might be taken at once for the proper isolation and treatment of this scourge. We may draw an example from the City of New York, where has been already recognized the necessity of this, and with characteristic American promptness the Sanitary Board has devised a system which has been found to work excellently well, the success of the experiment being stated by Dr. Hermann Biggs, the chief bacteriologist, to have exceeded all anticipations. This system consists briefly in—

A Bacteriological Inspector ;

Dépôts where culture tubes can be obtained, and which are collected each day ;

The circularizing of every practitioner in the city, apprising him of these arrangements, &c.

The loyal support of local practitioners has been given to the scheme in New York, and there should be little difficulty in this country of obtaining a similar loyal co-operation. It is high time that some such scheme should be adopted in England. There are no inherent difficulties in it. It does not need to be compulsory—indeed, if it be instituted as a voluntary experiment first of all, it would, we are convinced, work most advantageously. All that need be asked of the practitioner is to make an inoculation of a culture tube from his patient—tubes as to which he should be informed beforehand where he can obtain them free of cost. These would then be collected, examined and reported upon, so that the practitioner would be in possession of an accurate diagnosis of his case within twelve hours of his making the culture experiment, as in New York. In that city, also, a second cultivation experiment is made, so that no patient is pronounced convalescent until proved bacteriologically to be free from contagion. Under a properly devised system, as in New York, there is thus no time lost in making an accurate diagnosis, with all the coincident benefits of isolation, disinfection and prevention of contagion, as well as prompt recognition of the patient's condition.

The inoculation of the tubes by the practitioner is such a very simple matter of procedure, that in New York every ordinary physician has been proved to be competent to carry out the simple directions which are

issued with the culture tubes. Of course, some of them get spoiled by careless handling, but we cannot suppose that the practitioners of this country are one whit behind our American colleagues in intelligence, or less competent to execute these simple manœuvres.

By the courtesy of Dr. Hermann Biggs, the bacteriological director in New York, we are enabled to publish a description of the plan adopted in that city. It is simple from the reports presented to the Sanitary Board, and which we shall publish later in this Journal, is undoubtedly effective, and there is no earthly reason why a similar plan should not be adopted in this country. It might be limited in its operation in the first instance to London until the success of the experiment was assured. But it will be a reproach to the profession and the sanitary authorities of this country if we do not take some steps to render diagnosis of the anomalous forms of sore throat on the border-land of diphtheria more accurate, the treatment more effective, and the spread of the disease more readily checked, and we can only hope that the British Laryngological Association, which has been the first body to take up this matter, will lose no time in pressing the subject upon the attention of the Local Government Board, with the object of getting some such scheme adopted as is now in full practice in New York.

REPORT to the NEW YORK CITY HEALTH DEPARTMENT on the use of BACTERIOLOGICAL EXAMINATION for the DIAGNOSIS OF DIPHTHERIA.¹

By HERMANN M. BIGGS, M.D.,

Pathologist and Director of the Bacteriological Laboratory.

EARLY in January, 1893, a communication was addressed to the Health Board recommending the systematic and routine employment of the Health Department of bacteriological examinations for the diagnosis of suspected cases of diphtheria, and the appointment of Dr. William H. Park was suggested as a special inspector for this work.

This recommendation was made in view of the following considerations:—

1. The practical differentiation of diphtheria from other diseases affecting the upper air-passages is of great sanitary importance.

2. It is admitted by all clinicians of experience in this disease that it is often impossible, either from the clinical history or the anatomical lesions, to make an accurate diagnosis of diphtheria. There are no constant differences in either of these respects which separate clearly the simple non-contagious forms of inflammation from the diphtheritic and communicable types, and it is only in a rather small proportion of cases that an early and reliable diagnosis can be arrived at from these data. The records of the work of the New York City Health Department have shown this in

¹ A paper read at the Congress of the British Institute of Public Health, held in London, August, 1894.

a very striking way. In the cases of diphtheria at the Willard Parker Hospital, where the diagnosis has been made by one of the Department inspectors, and has been confirmed by a Department diagnostician before removal to the hospital, subsequent bacteriological examinations have shown that from thirty to fifty per cent. of these cases are not diphtheria, but are cases of pseudo-diphtheria.

3. All recent bacteriological investigations made with relation to the value of such examinations for diagnosis of diphtheria are in accord in stating positively that reliable conclusions may be reached by this method in from twelve to twenty-four hours. These investigations include those made by Baginsky in Berlin, Martin in Paris, and Koplik and Park in New York. The results arrived at in these investigations have been confirmed by the subsequent histories in the cases examined. In those cases in which bacteriological examination has shown the absence of the Klebs-Loeffler bacillus the mortality has varied from one to five per cent., and the cause of death has been usually broncho-pneumonia, and not the local disease; while in those cases in which bacteriological examinations have shown the presence of the Klebs-Loeffler bacillus the mortality has varied from twenty to nearly fifty per cent. Further, it has been demonstrated that in the cases in which the Klebs-Loeffler bacillus is not found, no matter how closely they resemble diphtheria in their anatomical appearances or their clinical histories, there is little danger of the transmission of the disease to others; while from the cases of true diphtheria (as shown by bacteriological examinations), even when the disease is of the mildest type, frequent and numerous instances of infection are recorded.

4. The use of bacteriological examinations for the diagnosis of diphtheria would have an important influence on the work of the Department. Bacteriological investigations in diphtheria have shown that accurate conclusions can be arrived at, as to the nature of the disease, in most cases in twelve hours. Investigations made by Dr. Park at the Willard Parker Hospital show that the Department has provided for the maintenance and treatment of a large number of cases of pseudo-diphtheria. This has been done at a large unnecessary annual cost, and the facilities of this Department for the treatment of cases of true diphtheria have been thereby limited. In addition to this, under the present regulations of the Department, a very large number of cases of pseudo-diphtheria must be repeatedly visited by inspectors, and the rooms, clothing, etc., after convalescence, thoroughly disinfected. This is at a further large cost to the Department, and the expenditure of much valuable time. If the Department was prepared to avail itself at once in all cases of means for the bacteriological diagnosis of diphtheria, as this can be completed in a short time, any definite action could, as a rule, be held in abeyance until a conclusion as to the nature of the disease had been reached. In those cases in which the results showed that the disease was pseudo-diphtheria, the Department would be at once relieved from further action.

During the year 1891, four thousand eight hundred and seventy-four cases of diphtheria were reported to this Board, and, so far as can be

judged from the data at hand, at least one-third, and perhaps more, of these cases were not diphtheria.

5. The resort to bacteriological examinations for the differentiation of true diphtheria from pseudo-diphtheria would constitute an important step in advance.

The New York Health Department has already put itself on record, very justly, as depending solely upon bacteriological examinations for the diagnosis of Asiatic cholera. So far as I am aware, no sanitary board has as yet officially utilized bacteriological examinations for the diagnosis of diphtheria, but practically these are of far greater importance than the bacteriological examinations in cholera, because of the greater prevalence and constant presence of diphtheria in this city. The formal recognition of this method by the Board would be received by the profession as an important indication of the determination of the Board to keep the work of the Department thoroughly abreast of the most recent discoveries of scientific medicine.

6. In addition to the work on the diagnosis of diphtheria, there would also be included investigations as to disinfection, and as to the best methods to prevent the extension of the disease.

In the report just quoted from, the appointment of Dr. William H. Park as bacteriological diagnostician and inspector of diphtheria was recommended because of the special investigations that had been carried on by Dr. Park during the previous year in the hospitals under the control of the Health Department, and because his special training and fitness for this position had been thoroughly demonstrated.

After some unavoidable delay, early in May, 1893, Dr. Park was appointed, in accordance with the previous recommendation, "bacteriological diagnostician and inspector of diphtheria."

The Department at that time determined to make use of bacteriological examinations for the diagnosis, not only in all cases admitted to the hospital wards, but also of all cases of suspected diphtheria occurring in the city where the co-operation or consent of the attending physician could be obtained. This action was determined on with a view to giving precision to the work of the Department in the prevention of this disease.

During the first weeks the number of cases examined weekly was comparatively small, but they have continually increased until, during the last few months, a large proportion of all the cases of suspected diphtheria occurring in the city have been subjected to bacteriological examination.

As the scope and extent of the work increased, it was found that it would be impossible for Dr. Park to perform all of the actual bacteriological work, and Mr. Alfred L. Beebe, inspector of bacteriology in this Department, was assigned to assist in the work.

From the beginning those in charge of the work had little doubt of its ultimate success, but they appreciated the importance of the change that was thus introduced in the sanitary management of this disease, and did not feel certain as to how rapidly and how completely the physicians of this city would make use of the opportunities that were thus afforded to them.

At first, as far as possible, the inspector of diphtheria, or special inspectors assigned to this duty, visited physicians who reported cases of diphtheria or requested that cultures be made, and explained to them the purposes of the work, and made inoculations from the cases reported.

After a short trial, however, it was evident that a large majority of the physicians of New York would be glad to avail themselves of the aid thus proffered by the Department. Then a further step was taken to place the opportunities for such examinations more readily at the command of physicians. A number of dépôts were established throughout the city (these now number about forty), where culture tubes and the directions required for making the inoculations could be obtained by physicians without charge.

These dépôts were generally established at drug stores, at convenient points, and arrangements were made for the collection of the tubes left at these dépôts by Department collectors late in the afternoon of each day. For convenience and safety in transporting the tubes, small wooden boxes were furnished at each of the dépôts. Each box contained all that is required for making a culture, *i.e.*, a culture tube, a swab for inoculating it, and a blank for recording the name, address, etc., of the patient—constituting “a culture outfit.”

Cards giving directions for making the cultures and the addresses of the dépôts where tubes could be obtained were also supplied with the tubes (see below).

Form 20 L, 1894.

2055.

HEALTH DEPARTMENT.

Division of Pathology, Bacteriology and Disinfection,

Bacteriological Laboratory—White, Centre, Elm and Franklin Streets.

Directions for making Cultures in Suspected Cases of Diphtheria.

The patient should be placed in a good light, and, if a child, properly held. In cases where it is possible to get a good view of the throat, depress the tongue and rub the cotton swab gently, but freely, against any visible exudate.

In other cases, including those in which the exudate is confined to the larynx, avoiding the tongue, pass the swab far back, and rub it freely against the mucous membrane of the pharynx and tonsils. Without laying the swab down, withdraw the cotton plug from the culture tube, insert the swab, and rub that portion of it which has touched the exudate gently but thoroughly back and forth all over the surface of the blood serum. Do not push the swab into the blood serum, nor break the surface in any way. Then replace the swab in its own tube, plug both tubes, put them in the box, and return the culture outfit at once to the station from which it was obtained.

A report will be forwarded the following morning by mail, or can be obtained by telephone, after 12 noon.

Culture Outfits can be obtained from the following Stations free of cost—

EAST SIDE.

712 Tremont Avenue	Eichwort
138th St. and 3d Ave.	Fraser
125th St. and Madison Ave.	Marsh
116th St. and 3d Ave.	Engelhardt

115th St. and 1st Ave.	New
110th St. and Madison Ave.	Barnes
105th St. and 3d Ave.	Aaronstam
86th St. and Park Ave.	Falkenrecht
67th St. and 3d Ave.	Hoykendorff
45th St. and 3d Ave.	Goetting
42d St. and Park Ave.	Schoonmaker
41st St. and Park Ave.	Van Horn & Ellison
29th St. and 4th Ave.	Bagoe
12th St. and 2d Ave.	Proben
11th St. and Avenue A	Montesser
Spring St. and Bowery	Minor

WEST SIDE.

135th St. and 7th Ave.	Breen
125th St. and 8th Ave.	Spear
122d St. and 7th Ave.	Heinemann
98th St. and Columbus Ave.	Rosenson
93d St. and Columbus Ave.	Dorn
72d St. and Boulevard ..	Kerley
72d St. and Columbus Ave.	Cassabeer
411 West 59th St.	Dougherty
46th St. and 5th Ave.	Bartlett & Liell
36th St. and 9th Ave.	Rupp
29th St. and 5th Ave.	Frazer
22d St. and 9th Ave.	Smith
157 8th Ave.	Lins
148 8th Ave.	Utley
12th St. and 6th Ave.	Ridgeway
8th St. and 6th Ave.	Bigelow
283 Bleecker St.	McCord
172 Varick St.	Jennsen

Form of blank with each "culture outfit."

21 L., 1894.

Return Swab and both Tubes.

2058.

DIPHTHERIA.

Name of Maker of Culture
 Date
 Name of Patient
 Address
 Att. Phys.
 Duration of Disease
 How Contracted
 Can Case be Isolated?
 Location of Membrane
 Was Inoculation Satisfactory?
 Clinical Diagnosis

Time

Age

Address

Return Swab and both Tubes.

The diagnosticians, and later the medical inspectors of the Department, were supplied with leather pocket cases containing culture tubes and swabs, and were given instructions regarding the methods of making the

inoculations. These arrangements being completed the following circular was delivered by special messengers at the office of every physician in this city.

23 Form L.

(4422)

HEALTH DEPARTMENT.

New York, July, 1893.

*Circular of Information Concerning the Use of Bacterial Cultures for the
Diagnosis of Diphtheria.*

Recent bacterial investigations have shown that a considerable proportion of the cases of pseudo-membranous and exudative inflammations of the throat and upper air-passages, commonly considered as diphtheria, and having the anatomical appearances found in diphtheria, are not true diphtheria. These cases may be called pseudo or false diphtheria.

It has also been shown that a considerable number of cases which are apparently false diphtheria, prove on bacterial examination to be true diphtheria. While in true diphtheria the mortality is very high, and the danger of transmission to others is great, in false diphtheria the mortality is low, and the danger of infection slight. The differential diagnosis between true and false diphtheria can be made by bacteriological examination within twelve hours, while without this the differentiation is difficult or impossible.

The Health Department is now prepared to make use of bacterial cultures for diagnosis in all cases of suspected diphtheria occurring in the city, and desires that in every case either the physicians should themselves make the inoculations, or should authorize an inspector to make them. They should be made in every suspicious case at the earliest possible moment, for during convalescence the specific organisms often disappear from the throat, and the full benefit of a positive diagnosis is not obtained unless it is made early in the disease.

The inoculations are made by gently rubbing a cotton swab against the throat, and then drawing it over the surface of the culture-medium. When the physician desires to himself make the culture (and this is usually the better plan, for it can be done earlier and is more agreeable to the family), he can obtain, free of cost, a culture tube and swab, and the simple directions necessary for their use, at any one of the druggists whose addresses are given below. After the inoculation the tubes are to be returned at once to the druggist from whom they were obtained. The tubes will be collected by the department every evening.

In cases where an inoculation has not been made by the attending physician, the medical inspector will make one, unless for any reason the physician requests that none be made when he notifies the department of the case.

The diagnosis will be ready by noon of the following day. The attending physician can obtain this immediately by telephoning to the laboratory, or when this is not done, he will be notified by mail. Cases which prove to be false diphtheria will not be visited by the Health Department inspectors. Cases, on the other hand, which prove to be true diphtheria, will be subjected to the usual rules and regulations covering contagious diseases.

The materials required for making inoculations can be obtained from the following druggists free of cost:

Fraser, 138th Street and Third Avenue.

Breen, 135th Street and Seventh Avenue.

Spear, 125th Street and Eighth Avenue.

Dorn, 93d Street and Ninth Avenue.

Dougherty, 411, West 59th Street

Fraser & Co., 29th Street and Fifth Avenue.
Bigelow, Eighth Street and Sixth Avenue.
Marsh, 125th Street and Madison Avenue.
Barnes, 110th Street and Madison Avenue.
Hoykendorf, 67th Street and Third Avenue.
Schoonmaker, 42d Street and Park Avenue.
Proben, 12th Street and Second Avenue.
Rupp, 36th Street and Ninth Avenue.
Miner, Bowery and Spring Street.

All communications on this subject should be addressed to Dr. Hermann M. Biggs, Chief Inspector Pathology, Bacteriology, and Disinfection, No. 42, Bleecker Street (Telephone "1191 Spring").

By order of the Board of Health,

CHARLES G. WILSON, President.

EMMONS CLARK, Secretary.

As soon as it was possible to still further enlarge the work, a new investigation was instituted, namely, the determination by bacteriological examination of secondary cultures from the throats of convalescent cases of diphtheria how long the bacilli of diphtheria persist during convalescence.

After a sufficient number of examinations had been made to draw accurate conclusions, the following circular was printed and ordered to be sent to physicians in every case with the report of the result of the bacteriological examination of the first culture. In it the important announcement is made that in the future no case will be considered free of the contagion of diphtheria until it has been so established by culture test:—

Form 31 L.

HEALTH DEPARTMENT.

No. 301, Mott Street,
New York, , 189 .

Division of Pathology, Bacteriology and Disinfection, No. 42, Bleecker Street.

(Telephone, 1191 Spring.)

To Dr.

Sir,—During the last few months a series of investigations have been made in the bacteriological laboratory of the Health Department to determine how long the Loeffler bacilli remain in the throat after the disappearance of all false membrane in cases of diphtheria. The results obtained are extremely significant, and have caused the Department to establish a new rule regarding the discharge from observation of patients who have suffered from diphtheria, and regarding the time of disinfection of the premises.

During the past three months four hundred and five cases of true diphtheria have been subjected to repeated bacteriological examinations performed at short intervals during the course of the disease and during convalescence. In all of these cases cultures were made at the beginning of the disease, again after the lapse of three or four days, and finally at short periods after the complete disappearance of the false membrane, until the throat was found to be free from the diphtheria bacillus. In two hundred and forty-five of these four hundred and five cases the

diphtheria bacilli disappeared within three days after the complete separation of the false membrane; in one hundred and sixty cases the diphtheria bacilli persisted for a longer time—namely, in one hundred and three cases for seven days; in thirty-four cases for twelve days; in sixteen cases for fifteen days; in four for three weeks, and in three for five weeks after the time when the exudation had completely disappeared from the upper air-passages. In many of these cases the patients were apparently well many days before the infectious agent had disappeared from the throat. These results show that in a considerable proportion of cases persons who have had diphtheria continue to carry the germs of the disease in their throats for many days after all signs and symptoms of the disease have disappeared. No doubt the disease is largely disseminated by these persons who are apparently well, and who mingle with others while their throat secretions still contain the diphtheria bacilli.

These experiments have led the Health Department to adopt the rule, that no person who has suffered from diphtheria shall be considered free from contagion until it has been shown by bacteriological examination, made after the disappearance of the membrane from the throat, that the throat secretions no longer contain the diphtheria bacilli, and that until such examinations have shown such absence all cases in boarding houses, hotels and tenement houses must remain isolated and under observation. Disinfection of the premises, therefore, will not be performed by the Department until examination has shown the absence of the organisms.

Secondary cultures, as in the case of primary cultures, may be made by the attending physician, if he so desires; otherwise they will be made by the inspector of the district in which the case occurs. This applies only to cases occurring in boarding houses, hotels and tenement houses—not to those in private houses.

In this connection an interesting observation has been made, showing that in diphtheria cases which have been subjected to frequent irrigation with antiseptic solutions from the beginning of the disease the bacilli disappear far more rapidly than in those in which such irrigations have not been employed. The Department would feel grateful for any data which the physicians of this city may furnish as to the treatment employed in each case, in order that more reliable conclusions may be reached as to the best mode of treatment.

It has been also noticed that occasionally when culture tubes are inoculated immediately after irrigation of the throat with antiseptic solutions the cultures do not show any Loeffler bacilli, although subsequent examinations may demonstrate their presence. This observation should be noted in making inoculations.

Very respectfully,

HERMANN M. BIGGS, M.D.,

Chief Inspector of Pathology, Bacteriology, and Disinfection.

Approved by the Board of Health.

CHARLES G. WILSON, President.

EMMONS CLARK, Secretary.

Blank to be filled out and returned with secondary cultures.

26 L., 1894.

2057.

Return Swab and both Tubes.

DIPHTHERIA. — Later Cultures.

Number of Culture, 2nd, 3rd, 4th, 5th, 6th, 7th, 8th.

Date Inspector or Physician

Name of Patient

Laboratory Number

Address

Duration of Disease

Is the place ready for disinfection if the culture is found free from diphtheria bacilli?

During the first few months, in order to test the results of the examinations and to make the liability to error as slight as possible, the following plan was adopted:—

All cases which yielded no diphtheria bacilli were turned over to special inspectors, who made, if possible in every case, a second culture, and followed up the case for some time after its recovery.

By means of the information thus secured, the bacteriologists of the Department were able to decide more and more surely how far they could base an absolute diagnosis upon the examination of a culture. Many physicians, as well as the inspectors, gradually became so skilled that it was possible to certainly rely upon the results arrived at from the examination of their cultures, while, on the other hand, caution was found to be necessary in accepting the inoculations of others; when it seemed desirable a second culture was requested.

The amount of reliance which can be placed on a culture in making a diagnosis will be considered in the general laboratory report.

In the circular given above, the Health Board announced that cases which proved to be false diphtheria would not be kept under the observation of the Department. Some physicians, who heartily approved of the work of the Department in its treatment of diphtheria, believed that in this step it had proceeded too far, and that the false cases, though less contagious than the true, are yet sufficiently so to render isolation and supervision necessary. From a large experience, the Department believed that these cases were so rarely serious in their results, and were so little, if at all, contagious, that visiting by Department inspectors was unnecessary. Nevertheless, before issuing the circular, one hundred and fifty consecutive cases were investigated, all sources of contagion sought for, and the cases followed for two weeks after convalescence. In none of these was isolation or disinfection required. The evidence obtained so completely confirmed the previous experience, that the Department felt justified in concluding that it was unnecessary to exercise any sanitary supervision of cases of false diphtheria. Those who believe that they have met with cases of false diphtheria, which have been the cause of severe or fatal illness in others, have probably either mistaken the nature of the first case, or have been dealing with some other infectious disease, such as scarlet fever, in which the inflammation of the throat is merely a secondary lesion.

In order to make the possibility of error in the routine work as slight as possible for some months, a circular has been mailed to physicians with every report.

Depending upon the results after the examination of primary cultures, one of the following blanks is filled out and mailed to the attending physician before twelve o'clock of the day following that upon which the culture is received.

22 L, 1894.

2056.

Laboratory No.

HEALTH DEPARTMENT.

Division of Pathology, Bacteriology, and Disinfection.

Bacteriological Laboratory—Centre, White, Elm and Franklin Sts.

New York, , 189 .

Dr.

Dear Sir,—The examination of the culture made by inoculating the tube with the exudation from the throat of _____ on shows the presence of the diphtheria bacilli.

The case is therefore one of true diphtheria.

Chief Inspector.

Inspector of Diphtheria.

24, Form L.

HEALTH DEPARTMENT.

Division of Pathology, Bacteriology, and Disinfection.

Bacteriological Laboratory—42, Bleecker Street.

New York, 189

Dr.

Dear Sir—The examination of the cultures made by inoculating the tubes with the exudation from the throat of _____ on does not show the presence of any diphtheria bacilli.

The case is therefore not true diphtheria,¹ but pseudo or false diphtheria, and no further cognizance will be taken of it by the Department unless by the special request of the physician in attendance.

Chief Inspector.

Inspector of Diphtheria.

¹ This conclusion is based on the supposition that the directions have been properly carried out, and that the inoculation was made before the commencement of convalescence. After convalescence is established the bacilli often disappear from the exudate.

32, Form L.

HEALTH DEPARTMENT.

Division of Pathology, Bacteriology, and Disinfection.

Bacteriological Laboratory—42, Bleecker Street.

New York, , 189 .

Dr.

Dear Sir,—The examination of the cultures made by inoculating the tube with the exudation from the throat of _____ on does not admit of an exact bacteriological diagnosis, for the following reasons:—

A. The inoculation was made at so late a period in the disease that it is possible that the diphtheria bacilli, though now absent, were at an earlier time present.

B. The growth on the culture media was so scanty that it is probable that

the inoculation was not properly made, or that some antiseptic had been applied to the throat shortly before obtaining the material for inoculating the tube.

c. The culture media was badly contaminated.

d. The serum in the tube was too dry to permit of the growth of the diphtheria bacilli.

a. Another culture is requested.

b. The case will be treated as one of diphtheria.

c. The case will be treated as one of false diphtheria unless the physician in charge of the case requests otherwise.

Chief Inspector.

Inspector of Diphtheria.

After the examination of each secondary culture depending on the result of the examination, one of the following blanks is filled out and forwarded to the attending physician and to the chief inspector of disinfection.

28 L, 1894.

2061

Laboratory No.

HEALTH DEPARTMENT.

Division of Pathology, Bacteriology, and Disinfection.

Bacteriological Laboratory--Centre, White, Elm and Franklin Sts.

New York,

189 .

Dr.

Dear Sir,—The examination of the culture made by inoculating the tube from the throat of _____ on _____ does not show the presence of any diphtheria bacilli.

The case is therefore ready for disinfection, if the other circumstances allow.

Chief Inspector.

Inspector of Diphtheria.

27 L, 1894.

2060.

Laboratory No.

HEALTH DEPARTMENT.

Division of Pathology, Bacteriology, and Disinfection.

Bacteriological Laboratory—Centre, White, Elm and Franklin Sts.

New York,

189 .

Dr.

Dear Sir,—The examination of the culture made by inoculating the tube from the throat of _____ on _____ shows the presence of the diphtheria bacilli.

The case is therefore not yet ready for disinfection, but needs a further culture.

Chief Inspector.

Inspector of Diphtheria.

In the beginning of this work some of those familiar with bacteriological work feared that it was unwise to trust the inoculation of the culture tubes to physicians unskilled in bacteriological methods. The Department has found, however, that as a rule physicians can be relied

upon to carefully follow the simple directions found to be necessary in making satisfactory inoculations of culture tubes, and to safely make a diagnosis upon the bacteriological examinations of such tubes.

A communication was forwarded to the Health Board, in November, 1893, recommending the adoption of an amendment to the Sanitary Code, which should include so-called "membranous croup" with the contagious diseases, concerning which the Department requires reports from physicians. This recommendation was based on the results of the bacteriological examinations of a considerable number of cases of croup, which showed that about eighty per cent. of them were really cases of laryngeal diphtheria.

The detailed results of the work for the first year, both as to the bacteriological examinations of suspected cases of diphtheria and the experimental work on questions allied to this, are contained in the appended report * from the bacteriological laboratory, made by Dr. William H. Park, Bacteriological Diagnostician and Inspector of Diphtheria, and Mr. Alfred L. Beebe, Inspector of Bacteriology.

The question is naturally and properly asked as to what influence this work has had upon the prevalence of diphtheria in this city, and in reply to this it can only be said that the periodic appearance of this disease in epidemic form was due in 1893, and the weekly number of cases had begun to increase before the initiation of this work.

A considerably larger number of cases of diphtheria have occurred during the past year than during the preceding year, but how much more serious this epidemic would have proved to be without the work which has been carried on by the Department it is impossible to say. The apparent number of cases has been unquestionably increased by the more universal reporting of cases by physicians, and the inability of the Department to completely control the spread of the disease will be readily understood by reference to the description of the methods of dissemination of the disease contained in the detailed report from the bacteriological laboratory which is appended.

It may be said in conclusion that the success of this new departure of the New York City Health Department has far exceeded all anticipation. The Health Board was the first sanitary board in the world to officially adopt and provide for the making of such bacteriological examinations, and the course of the board in this matter has been carefully watched by sanitary authorities in various parts of the world. Constant inquiries have been made as to the conduct of the work, and many requests for circulars and for information as to the manner in which the work is carried on have been received. Numerous representatives of other health departments have been instructed in the bacteriological laboratory, in methods, and the plan of work, as devised by this Department, has been adopted without modification by the health authorities of many other cities, and I believe that the Health Board should be congratulated upon the advanced step which it took in the initiation of this work.

* [This report will be published in the October issue of this Journal.—ED.]

CONGRESS MEETINGS.

BRITISH MEDICAL ASSOCIATION.

Annual Meeting, Bristol, August, 1894.

PRESIDENTIAL ADDRESS.

By P. MCBRIDE, M.D., F.R.C.P.E., F.R.S.E.

Gentlemen,—I have much pleasure in welcoming you to the meetings of this section, and I trust that all of us will derive both profit and pleasure from our *séances*.

With the vast amount of business before us I feel extremely disinclined to trouble you with any lengthened remarks from the chair. Tradition, however, makes some preliminary observations incumbent upon me, and I do not think that I can do better than refer very briefly to some of the advances we have of late made, and touch lightly upon a few of the problems that lie before us. In a region so open to universal inspection as the pharynx progress has not been altogether wanting, and signs are forthcoming that even now there is room for fruitful observation and research.

Within the memory of many who have not grown old in the study of throat disease new names have appeared in our nosology. I may, perhaps, mention pharyngo-mycosis, pharyngeal tuberculosis, and scleroma, all of them comparatively recent additions, although probably not by any means new diseases. Again, physiology has also advanced our knowledge of the innervation of the soft palate. Most of us remember how the presence or absence of paresis of this part was supposed to be an important guide to the exact seat of a lesion in the course of the facial nerve, and now all of us are aware that to the seventh nerve is ascribed little (if any) part in the innervation of the soft palate.

We cannot, however, help wondering how it occurred—if the new view be correct—that so many excellent observers recorded unilateral loss of power of the palate in cases of facial paralysis. So much for new but presumably settled facts: let us now turn for a moment to questions which are still open. As you are aware, a distinguished physician not long ago recorded examples of “acute infectious phlegmon of the pharynx,” and other observers soon attested the correctness of the clinical description he gave. The exact etiology of this affection, however, requires further elucidation, while its relation to or differentiation from erysipelatous sore throat leaves room for discussion and discovery.

Again, gentlemen, you are aware how indefinite is our clinical knowledge of diphtheria. It would almost seem here that in proportion as we advance on pathological lines we recede in bed-side diagnosis. We all remember with something akin to regret how delightfully dogmatic were

the older authors on this very question of diagnosis. Indeed, I am not sure that this dogmatism does not extend well up to date. Yet those of us who have studied recent developments are aware that we may have all the clinical features of diphtheria without the Klebs-Loeffler bacillus, and, worse still, may have the dreaded organism in a case which presents all the appearances of a mild tonsillitis.

Passing now from the pharynx to the larynx, we can still go on tracing the finger-mark of progress. It is a very remarkable fact, but a fact nevertheless, that the subject of pachydermia was first brought into prominence by a pathological anatomist. This disease in its typical form is by no means very rare, and presents such a characteristic picture that it is little short of marvellous that we specialists omitted to classify it correctly—if, indeed, we did not actually overlook it. Again, it is not very long ago that phthisis of the vocal apparatus was looked upon as a *noli me tangere*—as an affection which meant certain and not far distant death. Yet quite a large number of cases have now been recorded and demonstrated on the *post-mortem* table, in which tubercular ulcerations have healed, leaving healthy cicatrices.

It is not for me now to introduce controversial matter, and I shall therefore abstain from the tempting topic which is opened by reference to the treatment of tuberculosis. We may next fittingly pass to the subject of lupus, and it may not be amiss to remind you how rarely this disease was supposed to attack mucous membranes, and how comparatively common such cases really are, at least in some localities. The existence of tumours of the larynx had been recognized, not only since the introduction of the laryngoscope, but long before, on the *post-mortem* table. Yet we find from time to time new varieties described—such as myoma and keratosis. In this connection, however, the subject of malignant disease has come most prominently before us of late years, and there can be no doubt that we have made progress both in the diagnosis and treatment of this condition. We have come to recognize how very guarded must be our diagnosis from microscopic examination of a fragment, and at the same time how important it is to arrive at an early recognition. Excision of half the larynx, and even free removal of the diseased parts without attacking the cartilage have given the happiest results in cases where these measures have been adopted at a sufficiently early period, and yet all of us are aware how difficult it often is to distinguish a non-malignant from a malignant neoplasm at the stage most favourable for operation. Perhaps one of the most striking steps in the progress of laryngology is to be found in the chapter which deals with nervous affections. I need not remind you of the important clinical points which have been established, nor of the very valuable physiological experiments which have had such an important bearing upon the study of laryngeal paralysis and other neuroses. Again, the nervous affections of the organ to which voice users are liable have been most carefully studied, while that curious condition known as laryngeal vertigo has been described and discussed.

Another very interesting and, as far as my knowledge goes, novel nervous affection is the respiratory croaking of infants, which, while

accompanied by appearances and signs of distressed breathing, seems rarely to injure the sufferers. It would be out of place to do more now than name the important subject of intubation which we shall presently discuss. Whatever the ultimate verdict may be, we are I think entitled to look upon it at present as one of our most striking therapeutic novelties. The laryngoscope has been found useful not only in detecting affections of the larynx itself, but also in studying the posterior part of the tongue. In this way attention has been called to the so-called lingual tonsil, and it has been found that this part has a pathology in most respects analogous to that of the tonsil proper. Perhaps it may seem absurd to recall the benefits derived from cocaine as a novelty, for probably most of us have come to regard this drug as quite an old friend, and it is startling to realize how recent has been its introduction. On the inestimable boon conferred on laryngology thereby I need not further dwell.

Of all the subjects embraced in this section, rhinology is certainly the newest, and in connection with it there has been marked literary activity. Of course our means of examination have become improved and our methods of operating have become perfected, but I am not quite certain if our advances in this branch are as important as those which have been made in connection with those branches dealing with the throat or the ear. The best method of removing spines and deviations of the septum is still a point which may be said to be *sub judice*. With reference to inflammatory conditions we have had certain new facts established. Thus, in all probability, there exists a purely croupous affection of the nasal mucosa, which has been described as fibrinous rhinitis. Again, many intractable cases of post-nasal catarrh have been said to depend upon inflammation localized in a cavity variously described as bursa pharyngea and the median recess of the pharyngeal tonsil. Atrophic catarrh, however, remains as obstinate as ever, nor has its pathology been yet clearly elucidated. I do not know that very much has been added to our knowledge of nasal tumours excepting, perhaps, with regard to the occurrence of cysts—osseous and membranous. The employment of electrolysis in fibrous tumours seems also to promise results in a class of cases which have not yet often yielded thoroughly good results. Adenoid vegetations too, although perhaps not of sufficient novelty to be here mentioned, have of late years been assuming that prominence to which their importance entitles them. A very important point to the clinician is the very curious tendency possessed by the anterior and lower part of the cartilaginous septum to undergo certain changes. As you are aware, it is the most common site of hæmorrhage in the habitual nose-bleeder, and it is comparatively common to find here a perforating ulcer, of which it is always difficult and usually impossible to trace the history, and which has absolutely no connection with any dyscrasia.

Perhaps among advances in rhinology we should insert the galvanocaustic treatment of hay fever, although even this method yields most uncertain results. Probably one of the most important of clinical novelties has been the recognition of latent empyema of the accessory cavities—more especially the antrum ; but it would be anticipating our discussion to say more on the subject at present.

I have not, so far, spoken of nasal reflex neuroses, but there can be no doubt that the establishment of the fact that certain forms of asthma, cough, neuralgia, etc., may be benefited by treatment of the nose has been a most important era in rhinology. Only we must always remember that the nasal nerves are only one of many possible channels of reflex irritation, and that the rhinologist cannot afford to leave other possible factors out of account.

With regard to the ear our advances have not been very many, but some of them certainly have been of solid worth. As you are aware, one of the subjects upon which much has been written and asserted is the examination of the ear by exposing it to sounds of different pitch. I do not wish to be controversial, but it appears to me that we must have much larger and much more definite data from morbid anatomy before we can arrive at any dogmatic conclusions with regard to the value of this method in detecting labyrinthine disease. I do not know that we can claim any very important advance with regard to the external ear. Perhaps I should, however, mention these curious cases of hæmorrhage from the meatus, periodic in character, and in certain of which no bleeding point is detectable, of which several have been described.

The recent epidemics of influenza have been of great interest to the aurist in furnishing several very definite types of ear disease. Again, the relation of certain diseases to ear affection has recently been made a subject of close study, while carefully-conducted microscopic examinations of the internal ear have supplied much interesting information. Numerous operations have been practised in that type of deafness which is most commonly known as sclerosis of the middle ear, but the consensus of opinion has never yet been definitely in favour of any of them.

Of therapeutic advances without operation, I may refer to the use of pilocarpin in certain affections of the labyrinth and the employment of massage over the mastoid to promote absorption of inflammatory products within the tympanum.

By far the most important advance has, however, been made in the surgical treatment of suppurative ear disease. I need not tell you the various means which are used—removal of the ossicles opening into the mastoid antrum, exposing the attic, removing the posterior wall of the meatus, etc. I would only like to point out how the application of the long-recognized principles of general surgery to the ear has been crowned with success. You are, further, all acquainted with the great strides which have been made in the treatment of intra-cranial suppuration and phlebitis. There can be no doubt that the progress we have of late made in the treatment of pyogenic ear affections and their complications completely overshadows all other otological novelties.

Gentlemen, I have so far ventured to name—I will not say review—some of what appear to me to be important advances in those branches of medicine we have met to discuss.

I have no doubt that my list is very incomplete, and many of you will doubtless detect gaps; yet, if incomplete, it may perhaps still claim to be representative. It shows, I think, that we are advancing on sound lines, taking as our foundations patient clinical research, physiology,

pathology and rational therapeutics. If we compare our methods of treatment to-day with those in vogue twenty years ago, we find that the tendency has been to substitute operative measures for treatment by drugs. I do not say that we have not had some valuable additions to our pharmacopœia, but that the questions as to treatment which are most in evidence are surgical rather than medical problems. In this we reflect the tendency of the age as exemplified in other branches of medicine—*e.g.*, pulmonary disease, gynaecology, neurology, and even psychology. Our improved surgical methods have undoubtedly enabled the present generation of specialists to record successes which would have been thought impossible within the memory of living men, and humanity has benefited in proportion.

It is not uninteresting to note, however, that all our real progress in this direction has been made by applying the great general principles of surgery to the regions we have to treat. We may, I think, divide the operations with which we are particularly concerned into two great classes, *viz.*—

1. Those which are performed to carry out a distinct surgical indication.

2. Those which are more or less experimental.

There can be no doubt that those included in the first class have been a great boon to suffering humanity. Sometimes they have failed, but based as they are upon principles which are not only surgical but logical the total effect has been good. Moreover, year by year the modifications most suitable to aid us in applying the principles of surgery to the parts we have to treat have been further developed, and what not long ago was thought impossible has become not only possible but easy.

Among the second class of operations we must include not only those which are purely and confessedly experimental, but also such as are based upon hypotheses—whether physiological or pathological. There can be no doubt, gentlemen, that in this second class of operations we may have a source of danger to our *prestige*. You know as well as I do that the struggle for scientific existence is keen; the long, weary uphill road which leads through careful research and exact clinical observation to ultimate success is hard to travel and at best slow. A new operation is oftener easier to suggest and carry out than careful work, and so it is not inconceivable that we may have in these facts an element of danger not only to ourselves but to the public. Experimental operations may, under certain circumstances, be perfectly justified, but they should not be too much lauded. We must scrutinize all work of this kind with a more than usually jealous eye. The man who thus experiments must have already gained a high position, the patient must know the experimental nature of the procedure, and its performance must rest upon a basis of perfect logic.

I should feel inclined to go a step further, and say that such operations should only be carried out if, *mutatis mutandis*, the operator would have a like procedure practised upon himself. With these restrictions operative experiments may be, and often are, justifiable; without them they become a source of danger to specialists and their patients. The

operations to which I have just referred may be considered as somewhat analogous to the exploratory procedures of general surgery. Like the latter, they may be justifiable, or the reverse, according to the circumstances of the case.

As I have endeavoured to show, we have made much progress in recent years, and in this our specialties compare favourably with other departments of medicine. Our permanent advances have been on the lines of anatomy, physiology, pathology, and exact clinical research, while our treatment has improved by applying general principles of recognized value to the parts with which we have to deal. These are also the lines on which we may expect to make further progress, and by adhering to them we shall strengthen our position, while when we depart from them we render ourselves liable to be successfully assailed.

Excessive attention to unimportant, even if interesting details, a tendency to exaggerate the importance of one particular part to the exclusion of others, and above all, too great therapeutic activity seem to me to be the shoals which, if they cannot wreck us, may at least circumscribe our field of usefulness. On the other hand, the more we work on sound general principles, the less we exploit short-lived sensational methods, and the further we extend our specialties by lasting links, binding them to other branches of medicine, the more we may expect to see them thrive and retain an honoured and honourable position.

The Prognosis of Chronic Non-Suppurative Otitis Media with Imperforate Membrane. By G. FIELD, M.R.C.S., etc.

Mr. President and Gentlemen,—In the first place allow me to thank you for asking me, together with Dr. Barr, to open the discussion on chronic non-suppurative otitis media with imperforate membrane.

I propose to include under this designation the so-called acute and chronic catarrhs of the Eustachian tube, as well as chronic catarrhs of the tube and middle ear with and without secretion. I believe that, though described under distinctive titles by some authors, they are all, unless we exclude simple mucous obstruction of the Eustachian tube, linked together by intermediate forms, and that chronic catarrh of the tube invariably invades the contiguous mucous lining of the tympanic cavity, after having existed long enough to merit the term chronic.

Our prognosis in these affections must depend upon a great many considerations, and I propose taking them in a definite order, commencing under the heading—History of the case with the *duration* of the symptoms. The shorter the length of time the subjective and other symptoms have existed, the more favourable the prognosis. In the secretive forms of catarrh, age and other adverse circumstances must be taken into consideration. We may, I think, fix six months to one year as the limit within which we can reasonably hope (whatever may have been the original cause) to completely restore perfect hearing.

Next as regards the *Cause*. Prognosis will depend very much upon whether we trace the middle ear affection to a common cold, to local conditions in the nose, naso-pharynx, or fauces, to past illnesses, or to general diseases of the constitution. The prognosis is extremely favour-

able in simple catarrhal states of the nasal and naso-pharyngeal mucous membrane of not long standing, unless there are frequent relapses.

We also may hope for permanent cures from the removal of nasal and naso-pharyngeal polypi, adenoids, and enlarged faucial tonsils, where inflation has procured temporary relief.

Speaking generally, in a hypertrophic state of the mucous membrane, we may give a favourable prognosis; on the other hand, chronic deafness due, or at all events accompanying dry forms of pharyngitis, etc., is as a rule remarkably intractable.

The prospects of improvement when the disease has followed an attack of measles, scarlet fever, influenza, typhus, in which pathogenic organisms may be presumed to have played an important rôle, are less favourable.

Hereditary predisposition is an element in the case which, however difficult it may be to explain, is almost universally acknowledged.

Before allowing the fact of parents or other members of the family being deaf to influence our prognosis, we should bear in mind that what appears like hereditary transmission may be attributable to an exposure on the part of each member who has become deaf to the same climatic or other baneful influences which favour the development of catarrh. The point to decide in this connection is whether the conduct of inflammatory new formations in the tympanum is influenced prejudicially by heredity in individuals whose parents, or whose grandparents, have themselves suffered from this disease.

The occupation of the patient is of importance, and must be considered in conjunction with his climatic and hygienic surroundings and personal habits.

An occupation which exposes the subject continually to the influence of the weather, and to a liability to frequent relapses, such as those who gain their living in the open air all the year round, has a much smaller prospect of throwing off a catarrh.

An employment in the pursuit of which the auditory nerve is liable to undue irritation by loud noises, thereby adding the superaddition of labyrinthine disease upon an existing catarrh, affects the chances of the patient; whilst, as regards the ill effect of damp climate or of bad air, little need be said.

By lowering the general tone, or by keeping up a chronic catarrh of the pharynx, or even setting up an incurable pharyngitis, abuse of alcohol must of necessity aggravate the middle-ear catarrh.

By the mode of onset of the disease we shall be enabled to form some idea as to its future course. If the chronic affection has had its origin in an acute non-perforating otitis media, in which the inflammatory products have been incompletely absorbed and have become organized, we shall suspect adhesive processes, and an unfavourable termination.

A sudden onset, suggesting syphilis, which, as Bronner states, usually attacks the middle ear first, will justify a guarded prognosis. Politzer mentions that a rapid loss of hearing may especially be predicted in cases where sound-perception through the cranial bones has been found wanting soon after the commencement of the attack.

A slow and insidious commencement, such as we are in the habit of attributing to primary sclerosis, is extremely unfavourable, the main symptoms being a normal membrane, permeable Eustachian tube, progressive deafness, and constant tinnitus. Prognosis is largely influenced by the age of the individual. Youth is no saving element in neglected catarrhs of long duration, but after about fifty years of age the chances of getting any result from treatment diminish rapidly. In the first place the catarrh has probably existed some time, and thus an opportunity has arisen for the labyrinth to have become implicated; whilst, if of more recent duration, there is the fear that it will assume a sclerotic character, with consequent rigidity of the ossicular joints.

Passing next to the subjective symptoms, one of the most important of these is *tinnitus*. Its presence will influence our opinion unfavourably if it is loud and continuous, does not disappear after inflation, and is not therefore attributable to a temporary occlusion of the Eustachian tubes; if, furthermore, it cannot be accounted for under any other hypothesis than that of an existing middle-ear catarrh, with commencing changes in the tympanic cavity or labyrinth.

Giddiness or vertigo, accompanied by deafness, being a late symptom, and usually indicating increased labyrinthine pressure, is, on the whole, unfavourable.

Another subjective symptom is *paracusis Willisii*. With the exception of Sexton, who has met with instances of it, which from the results of treatment justified a favourable prognosis, most writers with whom my experience accords regard it as an indication of sclerosis, and one that will render treatment useless.

It is true that a favourable condition of the auditory nerve may be diagnosed, but with fixation of the ossicles the most we can hope is that the deafness will remain stationary, and that so long as the symptom continues it will never be complete.

From an inspection of the membrana tympani we may gather a good deal that will assist in forming a prognosis. A transparent state of this organ showing through it a hyperæmic condition of the lining membrane, and revealing an early stage of catarrh, is an appearance which points to a favourable termination under treatment.

Slight degrees of opacity may mean nothing, but high degrees of this condition are of very grave import.

A thinned and atrophied membrane, with loss of tension from abuse of inflation or long-continued external atmospheric pressure, is a lesion which can scarcely be remedied. Some assistance will be derived from watching the behaviour of the membrane during the application of the air douche, and also of Siegel's pneumatic speculum, by which we shall judge of the degree of flaccidity of an atrophied membrane, and of the state of the ossicles.

Fluid secretion in the cavity of the tympanum, as occasionally seen through a transparent membrane in the best marked cases of the secreting form of chronic otitis media, does not carry with it an unfavourable prognosis. We are justified in presuming that the operation of paracentesis followed by inflation, or even inflation without incision of the hearing

membrane, will be sufficient to clear away the secretion and restore the hearing.

The next point to be taken up is the *degree of the deafness* and the result of *hearing tests*.

It is a favourable sign if the deafness is variable, but as regards degree, slight deafness may yield no result to treatment, whereas very marked impairment of hearing may disappear altogether; so that, except in extreme degrees, no precise inference can be drawn from the symptom. When one ear is very deaf, there is said to be grave danger of an implication of the sound one.

From the state of the hearing after inflation by any of the recognized methods, we are enabled to judge better than by any other procedure whether we have to deal with a fixed or immovable obstruction to the aerial conduction of sound. If after the first and two or three subsequent applications of Politzer's bag, or the catheter, perfect hearing is restored, and tinnitus, if present, disappears, we are justified in anticipating a favourable result.

If, on the other hand, but little alteration is effected, or if the improvement is considerable, but passes off in the course of a day or two, our conclusion must be that new formation of connective tissue has taken place, and the question becomes whether the patient will retain what hearing he has got, and for how long? or whether further treatment will be of any avail.

The answer will be found in an investigation of the general health of the patient, the conditions under which he lives, his habits and family history, and the healthy condition of his throat, nose, and fauces as regards existing chronic catarrh.

The state of patency of the Eustachian tubes as ascertained by the help of auscultation, and if occluded the extent to which they can be rendered pervious by inflation or mechanical dilatation, will also guide our opinion.

Poltzer attaches importance to the result of his test for the patency of the tubes, in forming a prognosis, especially where the deafness is unilateral; a vibrating tuning-fork is held before the patient's nostrils while he is directed to swallow.

The prognosis is said to be more favourable if, after being previously heard louder in the normal ear, the middle C tuning-fork, after inflation, comes to be heard louder in the deafer ear; that is to say, if the result, like Weber's test, is positive for the diseased ear.

The Eustachian tube may under these circumstances be presumed to have been rendered patent after having been *previously* collapsed—

If inflation produces no improvement at all in the hearing, and the Eustachian tubes are proved by auscultation to be patent—if, in fact, by these and other signs the diagnosis is clear, prognosis resolves itself practically into the question whether or to what extent the auditory nerve and labyrinth are becoming involved in the sclerosing process. We shall form a relatively more unfavourable prognosis if bone conduction is shortened at the mastoid, and if with this sign hearing for tuning-forks of low pitch and for conversation is better than for high tones, the watch tick, and for the upper registers of Galton's whistle.

Further corroboration of nerve implication will be found if in presence of considerable deafness the patient hears worse in a noise.

From the point of view of the middle ear our prognosis as guided by the tuning-fork will be more unfavourable if Rinne's test is negative for forks of all grades.

In the case of old people, from the fact that owing to the shortening of their bone conduction and gradual loss of appreciation of high tones at the meatus these tests are of considerably less value.

One word as to the state of the *general health*, which cannot be left out of consideration.

If the hypothesis is correct that the aural lesions in chronic middle-ear catarrh are the last enactments, so to speak, of a long series of faulty and abnormal processes in the organism, it is all the more obvious that the presence of such states as anæmia, cachexia, tubercle, and the like, which still further contribute towards a lowering of the general nervous and constitutional tone, will greatly aggravate existing morbid conditions, and will contribute towards the progress of the disease.

In conclusion, a word as to prognosis from the point of view of *treatment* after removal of every ascertainable local cause in the adjoining regions, and after the Eustachian tube has been rendered permeable.

(1) From the pilocarpin injections, intra-tympanic and subcutaneous, I have had many good results. The prospects of benefit from this treatment are especially favourable, where there is a history of syphilis, if there are labyrinthine complications.

(2) From operations upon the membrane and ossicles. The results obtained by American surgeons after removal of the malleus and incus are so far encouraging as to warrant us in holding out some prospect of relief to certain of the subjective symptoms in patients suffering from advanced sclerosis—that is to say, they will in all probability obtain amelioration of the tinnitus and vertigo, and perhaps gain some improvement in their hearing.

Sexton gives a more favourable prognosis if the patient can be induced to go through this particular operation in the early stages of the catarrh, but in any case he believes he can preserve the *status quo*, and arrest the progress of disease by removing disorganized parts.

To sum up—(1) Prognosis in chronic middle-ear catarrh is *most* favourable in children and young adults, in whom the cause is plainly attributable to local and removable obstruction, naso-pharyngeal or faucial abnormalities, or to simple mucous obstruction of the Eustachian tube from a common cold, or other temporary catarrhal condition: the result of inflation and other tests satisfying us that secondary changes have not yet transpired to impede the functions of the membrane and ossicles.

(2) When, from whatever cause arising, or however long or short the duration, or from the age of the patient and other circumstances, the hearing power after inflation is recovered in part only, the inference is that consecutive changes due to organization of secretions have already commenced, and that slowly or quickly, depending upon a number of conditions already detailed, the disease will continue to develop, no matter what treatment be adopted. (Sexton, Roosa.)

Roosa thinks that about twenty per cent. of adult patients are relieved, but none absolutely cured.

(3) The prognosis is unfavourable where, with much deafness, there is no improvement whatever after forcible catheterism, dilatation of the Eustachian tube, removal of secretions, or the intra-tympanic injection of solvents.

(4) The prognosis is absolutely bad (still as regards improvement) when the symptoms point to primary sclerosis, and worst of all (as regards in this case retention of any hearing power) where, with or without sclerosis, the tuning-fork tests point to serious labyrinthine disturbance.

The Prognosis of Non-Perforative Otitis Media. By Dr. THOMAS BARR (Glasgow).

VARIETIES OF THE AFFECTION.

In discussing the prognosis of non-suppurative or non-perforative otitis media, it is essential first to take into account the varied pathological conditions included under this term. We must specially distinguish—(1) The exudative form of otitis media, with swelling and hyper-secretion of the mucous membrane of the middle ear. (2) The non-exudative class, attended by interstitial change with new formation of connective tissue in the mucous membrane. (3) The mixed class, in which the exudative form of inflammation is superadded to an already existing interstitial form; and (4) the class in which these are complicated with a disturbance in the labyrinth. The prognosis will hang very much upon our ideas of the predominance of one or other of these conditions.

EXUDATIVE FORM OF NON-PERFORATIVE OTITIS MEDIA.

The consideration of the prognosis of the exudative class need not detain us long, the prognostic problem being here much simpler than in the non-exudative. There are the simple, painless exudations, with but slight inflammatory change in the tympanic membrane, and the painful exudations with pronounced inflammatory change in the membrane.

THE PAINLESS EXUDATIVE INFLAMMATIONS.

With regard to the painless exudative inflammations so common in childhood, we can fortunately predict in the great majority of cases complete recovery, with intact structure and unimpaired function. It may be said indeed that, with the discovery of post-nasal adenoid growths and their operative treatment, the prospect of effecting a complete cure in this class of affections has attained a degree of certainty seldom reached in any other region of the body. Only very exceptionally do such cases proceed to permanent adhesions or interstitial changes, and very rarely are they complicated with labyrinthine mischief. When occurring in adult life, there may be more frequently a less perfect recovery owing to the affection being then sometimes engrafted upon pre-existing conditions, such as stiffening or adhesive processes in the tympanic structures. If thoroughly effective inflation of the middle ear, especially when accompanied by incision of the membrane and evacua-

tion of the secretion, produce little or no improvement in the hearing, we may suspect that there are permanent organized products in the middle ear, or that there is a concomitant affection of the labyrinth.

THE PAINFUL EXUDATIVE INFLAMMATIONS.

In the more painful and markedly inflammatory forms of exudation the prospects, in my experience, of leaving behind an intact organ are not quite so favourable. Owing to its usually viscid character the secretion is not so readily absorbed without treatment, while from the greater depth and intensity of the inflammatory process permanent changes in the mucous membrane are more to be feared. In after years we often find patients tracing their permanent deafness to ear-aches in childhood—no doubt the expressions of non-perforative inflammations which had initiated the permanent interstitial changes which we may now discover in the ear. That the pathological meaning of these ear-aches is rarely understood by the physician, and that as a consequence unseen and unsuspected processes are allowed to pursue their course undisturbed by treatment, shows a defect in medical education which we have still to deplore.

It may be truly affirmed that in these exudative forms of otitis media, whether of the more simple or the more inflammatory kind, the cases are few in which improvement cannot be effected by appropriate treatment, while entire recovery is the rule. Only when treatment is completely neglected or imperfect, or where the affection occurs in certain unfavourable states of health, which will be referred to further on, may serious and permanent consequences ensue.

The inflammatory process may in such circumstances lead (1) to irremediable condensations, contractions or adhesions; (2) to softening and perforation, with all the possible consequences, or (3) to the development of grave labyrinthine changes.

THE NON-EXUDATIVE FORMS OF OTITIS MEDIA.

We now come to the more complicated problem of the prognosis of the non-exudative forms of otitis media. Here we have to take into account the existence of structural changes on the inner and outer walls of the tympanic cavity with stiffening, rigidity, and immobility of the ossicles and the other essential parts of the conducting structures. The prospects here are therefore very different and much less favourable than in the exudative form. Indeed, it is our duty in many cases frankly to explain to the patient that, while it may be possible to improve the hearing or mitigate the subjective sounds, the return to normal function is out of the question.

IMPORTANCE OF OBJECTIVE SYMPTOMS.

It may be said broadly that, in any given case, the more marked the objective changes found in the ear the more favourable are the prospects of improvement. If we find manifest signs of catarrhal or inflammatory changes in the middle ear—an indrawn membrane, a prominent posterior fold, an obstructed Eustachian tube, an atrophied membrane, if nasal stenosis, post-nasal catarrh, or adenoid vegetations are present, and

especially if, by a single efficient inflation, by the catheter or Politzer's method, a measure of improvement in the hearing or a diminution in the intensity of the subjective sounds be observed, the prospects are decidedly favourable. We may anticipate, by judicious treatment, to effect relative improvement in the condition of the hearing with mitigation of the subjective sounds, while we may reasonably hope to check or hinder the further development of the stiffening and adhesive processes. If, on the other hand, in a case presenting marked defect of hearing and violent subjective sounds, originating imperceptibly and progressing rapidly, we find no abnormal change in the tympanic membrane, if the naso-pharynx and nasal passages exhibit neither catarrhal nor hypertrophic change, if the Eustachian tube is freely permeable, and especially if no improvement in hearing is produced by a single successful inflation, the likelihood is that very little good will be effected by treatment. The fenestral structures and the ossicular joints are probably permanently stiffened.

INFORMATION FROM RESULTS OF INFLATION.

I have emphasized the fact that the absence of improvement or the temporary aggravation in the deafness after a single act of inflation must be looked upon as, in most cases, an unfavourable omen. This is especially so if the air passes through the Eustachian tube into the cavity of the tympanum with a full clear sound, showing an open, if not abnormally open, Eustachian tube, and yet no improvement in the hearing follows. In some cases, on the other hand, where the air enters the tympanum feebly, yielding a thin, shrill, intermittent sound, with slight improvement in hearing, I feel more hopeful of doing good than in the previous case. By a course of inflation, we may reasonably hope to overcome in some measure the adhesive and stiffening processes, if those are not so completely organized as to resist entirely the mechanical effect of repeated acts of inflation. My experience, however, has taught me that it is unsafe hastily to assume, in all cases where a negative result from inflation is found, that no good will be achieved by a course of treatment. Especially when the mucous membrane of the nasal passages or naso-pharynx is the seat of a catarrhal or hypertrophic process, I have found that real and permanent improvement has sometimes followed treatment.

THE TEST OF TREATMENT.

It is rare, indeed, whatever the pathological conditions found or supposed to exist, that we are justified in definitely excluding the possibility of doing good, until we have applied the test of treatment. We must be very careful, however, not to push this experimental treatment too far; we must watch closely that no increase in the deafness or in the subjective sounds is produced by it, and that on the first indication of such an untoward result the experimental efforts be immediately discontinued. I would here protest against exaggerating the rôle played in the causation of this affection by deviation of or ridges on the nasal septum. To offer to the patient, as is sometimes done, prospects of improvement in the hearing if such projections were removed, is, I think, quite unjustifiable.

THE EXUDATIVE ELEMENT SUPERADDED TO THE INTERSTITIAL.

In the mixed class of cases where the exudative form of inflammation is superadded to an already existing interstitial form the prognosis is undoubtedly much more favourable. A patient who has been dull of hearing for many years becomes suddenly worse. This will frequently be found to be due to a fresher process, of an exudative nature, being added to a previous interstitial affection. Immediate improvement generally follows inflation in such cases, and we are able to relieve the anxieties of the patient and promise at least a return to the previous condition.

OTITIS MEDIA ASSOCIATED WITH LABYRINTHINE DISTURBANCE.

In the class of cases of otitis media supposed to be associated with labyrinthine disturbance, the facts yielded by tests applied to determine the state of the bone-conduction of sound in relation to the air-conduction are of considerable importance. While there is no doubt that excess of bone-conduction, as tested both by Weber's and Rinne's tests, should be regarded as a favourable point in the prognosis, it is by no means a reliable indication that treatment will prove useful. That incurable stiffening of the ossicles may be attended by relative excess of bone-conduction is a familiar clinical fact. In like manner, where the bone-conduction is found to be relatively weak, we must not hastily give an absolutely unfavourable prognosis. I refer not merely to persons over sixty years of age, in whom, as we know, weak conduction by the bone is usual, but to patients in early and middle life, where, notwithstanding the existence of relatively weak bone-conduction, improvement sometimes follows a course of treatment. There are no doubt many cases of middle-ear inflammation associated at the same time with a nerve or labyrinthine affection—it may be temporary in character—the latter neutralizing or more than neutralizing the tendency to excess of bone-conduction excited by the former. In such cases the treatment of the inflammatory element in the middle ear or of the labyrinthine disturbance may lead to appreciable improvement. Still it must be admitted that weak bone-conduction has usually a sinister meaning, and nearly always implies, even in the exudative form, that no more than partial improvement need be expected from treatment. In my experience weak bone-conduction bears the worst meaning in cases of non-exudative otitis media in children, where repeated inflation produces no impression upon the hearing. In regard, therefore, to the significance of excessive or defective bone-conduction, I have learnt to exercise caution in giving a categorical opinion simply upon such basis. The other features of the case, both subjective and objective, which have been already adverted to, must at the same time be carefully considered.

THE SIGNIFICANCE OF HEARING BETTER IN A NOISE.

Does the presence of the phenomenon of hearing better in a noise influence the prognosis in such cases? There is no doubt that this anomaly of hearing is present in a considerable number of the non-exudative cases of otitis media, and it is now generally admitted, I think, that its presence indicates a degree of stiffening of the conducting

structures. In so far as this is the case, it is generally regarded as unfavourable in a prognostic point of view. It must not be regarded, however, as necessarily excluding all chance of improvement. As a matter of fact, improvement does occasionally follow the judicious treatment of cases associated with this phenomenon.

THE BEARING OF DEFECTIVE STATE OF HEALTH UPON PROGNOSIS.

Lastly, I would refer shortly to the bearing on the prognosis of this affection of unhealthy constitutional conditions or tendencies. We all recognize the fact that in both forms of exudative otitis media the tendency to the development of permanent changes or to suppuration and perforation is greater in an unsound constitution, especially in the tubercular or scrofulous or anæmic conditions. Likewise, when we are cognizant of the existence of a marked hereditary tendency to middle-ear disease or nasal catarrh, the prospects in all forms of otitis media must be regarded as thereby rendered more unfavourable. It goes without saying also, that when the patient's mode of life is such as to be unfavourable to health, or such as to expose him to the usual causes of middle-ear inflammation, there is a greater tendency to persistence or recurrence of the disease. The exanthematous diseases, especially measles and scarlet fever, often impress upon the inflammation a marked tendency to the development of permanent changes in the tympanum. Specific disease seems to engraft upon these cases a serious character. I have frequently seen, in cases of non-exudative otitis media which had been quiescent for a considerable time, a rapid change for the worse, due, I think to involvement of the labyrinth after the reception into the system of this poison. A sad instance occurring in the person of a medical man came under my observation. After having had a moderate defect of hearing for a length of time, due to the interstitial form of otitis media, he was inoculated with the syphilitic poison. This was done through the medium of a scratch on his finger, received while conducting the *accouchement* of a woman suffering from primary syphilis. Not long afterwards the hearing became rapidly worse, and ultimately he was compelled to resort to a conversation-tube, with, of course, the most critical effects on his practice. So when the non-exudative otitis media occurs in a constitution already infected with syphilis the progress must be regarded as much less favourable, owing to the greater tendency to labyrinthine complication, with defective bone-conduction.

I have not referred to the bearing upon the prognosis of the statistical statements published from time to time by various authors professing to show the percentage of improvements or cures in this class of affections. In my opinion we have not yet at our command sufficiently reliable information, in the form of statistics as to the results of treatment, to throw much light upon the prognosis of this affection.

DISCUSSION ON MR. FIELD'S AND DR. BARR'S PAPERS.

Dr. DUNDAS GRANT was glad to hear the result of Mr. Field's large experience, and that of Dr. Barr, with which his own was so largely in accord.

He had formulated certain rough rules for prognosis which appeared to contain the gist of what Mr. Field and Dr. Barr had arrived at. He (Dr. Grant) divided the cases of chronic non-suppurative catarrh into three classes :—

1. Those in which there is evidence of Eustachian obstruction and improvement on inflation, in which the prognosis is relatively favourable.
2. Those in which there is no evidence of Eustachian obstruction without improvement on inflation, in which the prognosis is unfavourable.
3. Those in which there is evidence of Eustachian obstruction and little or no immediate improvement on inflation. In these the prognosis is intermediate between the two others.

Dr. Grant did not intend to pass in review all the elements Mr. Field had enumerated, but would confine himself to a few with regard to which no remark had been made. The element of sex had forced itself upon Dr. Grant's notice as of great importance. He had been greatly struck by the relative frequency and obstinacy of cases of chronic catarrh of the tympanum occurring in young girls as compared with those in young male patients. He had no doubt as to the fact, but he was not certain as to the cause. It might be (1) relative constitutional and nervous debility ; (2) the toxic effect of the chronic constipation so habitual in young girls ; (3) catarrh acquired and repeated owing to imperfect drying after washing the long hair ; (4) a neurotic or hysterical affection behind the catarrh ; (5) the monthly disturbance of nutritive equilibrium incidental to the sex. He asked for further information and suggestion on this point. If the *mode of onset* was insidious, with tinnitus from the commencement, the prognosis was much more unfavourable than if acute with a well-marked catarrhal origin. He understood Mr. Field to say that the acute origin was unfavourable. A point not referred to was the *anæsthesia* of the membrana tympani observed in many cases and attributable to atrophy of the sensory nerves. Dr. Grant had frequently noticed a similar condition in the interior of the tympanum, the patient not perceiving the entrance of air into the tympanum on inflation when auscultation rendered it certain that it had done so. This was of unfavourable omen and supported the idea that chronic dry catarrh of the middle ear was in many cases a tropho-neurosis. [The time allowed for speaking having elapsed, Dr. Grant was prevented from making the following remarks, which, however, he was permitted to add in writing.] In many cases *fixation of ossicles* revealed by Siegel's speculum accounted for intractability under the ordinary methods of treatment. This was frequently due to arthritic processes, and yielded to mobilization by means of Siegel's speculum, Delstanche's rarefacteur, or Lucae's spring probe. The *diminution of bone-conduction* occurring in later stages might be due to fixation of the stapes or to secondary affection of the nerve, but in view of Bezold's studies it might often be attributed to an affection—thickening or fixation—of the fenestra rotunda. He thought that in reports of results of treatment of *syphilitic disease of the labyrinth* more definite statements should be made as to whether the disease had occurred in the relatively tractable secondary stage. He would recommend the employment of *Rinne's test with forks of different pitch* with a view to prognosis. As a means of treatment

which had given him unexpectedly good results, he now made use of *Eustachian injections* of paroline medicated with menthol and camphor.

MR. LENNOX BROWNE would not occupy the time of the section in discussing each element of prognosis as considered categorically by Mr. Field, and not less philosophically by Dr. Barr, but would only refer to one or two points which had occurred to him as he had listened to their papers. In the first place, he had been pleased to observe that the word "catarrh" or "catarrhal" was omitted from the subject title, and regretted to find it introduced so frequently in the opening remarks. When one talked of a dry pharyngeal catarrh, the term merely represented a condition due to nasal obstruction and consequent mouth-breathing, while post-nasal catarrh indicated disease in the naso-pharyngeal vault. Consideration of catarrh, therefore, as an element of prognosis was misleading. Mr. Browne referred to the fact that neither the appearance of the membrane nor the effect of inflation was always to be relied on, for the former might often be transparent in many cases of considerable middle-ear mischief, and with many other hopeful indications inflation was sometimes followed by no improvement, and even a temporary diminution of hearing power, and the same might be said of tests for auditory nerve implication. He agreed with Dr. Dundas Grant as to a process of nerve dulling in this class of cases, which was frequently overcome on the removal of impediments to normal conduction. In the opinion of the speaker the one great indication was to have an absolutely free nostril and the removal of all obstructions to nasal patency, whether hard or soft. He regretted that Dr. Barr should think it "quite unjustifiable to offer prospects of improvement in the hearing if such (rigid) projections were removed." It was doubtful whether we were ever justified in holding out prospects of relief in any case of chronic middle-ear deafness, but our views as to the degree of hope to be held out must naturally vary with our individual experience: while one with small experience of the effect of removal of rigid obstruction in the nose might not feel justified in offering hope, another with larger experience or happier results might feel so justified. As to other points of treatment in relation to prognosis, the speaker considered the constant passage of catheters and long-continued inflation useless in the case of impaired nasal patency unless the cause were removed, and as, indeed, calculated to increase the nasal obstruction. When relief had been effected in this direction, catheterization, etc., was often found not to be required. He also deprecated the use of steam inhalations and of nasal douches in cases of hypertrophic rhinitis.

DR. LOVE (Glasgow): The chief feature suggested by the discussion is the pessimistic nature of the outlook in the absence of any reasonable cause in the nose. The chief difficulty is to distinguish between the various forms described by Dr. Barr as interstitial and exudative, etc. In the absence of such a diagnostic test it is important to have some definite rule for procedure. In cases where there is no reasonable cause in the naso-pharynx, where the patient is over fifty, and where no operative procedure is likely to do good, what course are we to follow? Inflation by catheter for a period of three weeks appears to be sufficient

for the formation of a definite opinion in the typical case of non-suppurative catarrh. If improvement does not follow, the patient should be frankly told that treatment is not likely to do good.

Dr. WALKER DOWNIE: Heredity in chronic non-suppurative otitis media, touched upon by Mr. Field, is an important factor, but this may not be a predisposition to a middle-ear sclerosis, but to superficial catarrhal inflammation of the pharynx. In addition, I think, we have marked differences in the calibre of the Eustachian tubes, just as we have the external auditory meatus varying in length, direction and diameter. In those cases associated with catarrhal symptoms—that is, of an inflammatory character, with formation of discharge—evacuation of the middle ear is of the greatest importance; and where inflation is not sufficient to at once bring about the result, paracentesis should be done without delay. Much valuable time is often lost by prolonged dependence on its use alone. In the use of pilocarpin, hypodermically injected, recommended by Mr. Field, I must say that in middle-ear sclerosis it has been of but little avail, although in the affection of the labyrinth due to recent acquired syphilis it has proved useful.

Then, in regard to Dr. Barr's remarks anent septal hypertrophies and displacements. When those deformities of the nasal septum are sufficient to interfere with respiration, or with the evacuation of nasal or naso-pharyngeal discharge, such deformities should be removed, and a free air-way restored. This is of very great importance in the treatment of chronic pharyngeal as well as tympanic conditions.

Where the otitis is of a distinctly catarrhal character, prognosis is favourable by appropriate treatment applied early.

Dr. PERMEWAN would like an expression of opinion on the relation of syphilis to otitis media chronica. What hope is there in a case of four years' duration, only slightly improved by inflation, but very much improved by injection of solution of iodide of potassium, this improvement being, however, only temporary? Dr. Permewan thought that inflation should be continued for a period of six months before forming a hopeless prognosis. It was the long continuance of the treatment which often gave some hope of improvement. He did not think it probable, as stated by some authors, that long-continued inflation was likely to do material harm.

Dr. WILLIAM HILL remarked, in reference to old-standing chronic aural catarrh, that in his experience the presence of soft obstructions in the nose and pharynx influenced prognosis to the extent that in advising operative treatment we were justified in giving the patient more hope of relief in this condition than in the case of hard rigid obstructions, such as spurs and deflections of the septum; but though in neither instance were we justified in actually prognosing relief after operation, the result being so uncertain, yet, inasmuch as such treatment was occasionally successful, most patients would be well advised to have any obstructive conditions in the nose and naso-pharynx, whether soft or hard, removed. Dr. Hill advocated the use of the Eustachian bougie as a *dernier resort*, and alluded to one case in which a catgut fiddle-string used by the patient through the catheter as a bougie had produced immediate, though

temporary, relief, although a bad prognosis had been given before bougieing was tried.

Dr. MCKENZIE JOHNSTON (Edinburgh) wished to know when Mr. Field considered that a middle-ear catarrh became chronic. He thought that if we excluded recent obstructive cases, and where no secondary changes had commenced, that we should find the prognosis, generally speaking, to be unfavourable in the remaining chronic cases of old-standing. He referred to the statement made in most text-books that "hearing better in a noise" gave a bad prognosis, and stated that he had seen several exceptions to this. He agreed with Dr. Dundas Grant that many cases of chronic middle-ear catarrh occurred among females, and he stated that these cases, in his experience, were generally cases of chronic dry catarrh, and that they exhibited evidence of a lowered state of health, and he agreed that the prognosis in these was bad.

Dr. H. KNAPP (New York): The prognosis of chronic middle-ear inflammation depends, as many gentlemen have stated, on the conditions which a patient presents when he first calls on the physician. As long as the various causes of deafness, in particular adenoid growths and nasal disease, can be cured or benefited by treatment, the prognosis is proportionately good. When the unchecked persistence of the causes has produced very marked impairment of hearing, the removal of these causes, either by natural termination or treatment, even when cicatricial tissue has, to a large extent, substituted the mucous membrane and interferes with the conduction sound, may, if the patient is placed under favourable hygienic conditions, so that the hearing organ can adapt itself to the new conditions, produce an improvement. In this way the hardness of hearing may at least become stationary for many years.

As in the discussion the prognosis is stated to be more or less influenced by certain modes of treatment, *i.e.*, what good these can do, I may say a few words on two modes which have not been mentioned. Both rest on the surgical principle of treating stiff joints by forcible movements. The first is the *electric vibrophone*, which during the last year has been so much spoken of in America. Some aurists report favourable results from its use, others, of whom I am one, have found that the vibrophone in most cases produces a slight increase of hearing acuteness, but it is transient, and even if longer used, even this improvement is no longer perceptible.

The second is the *pressure probe* of Prof. Lucae, of Berlin. Formerly the instrument was stiff and caused a good deal of pain, and even superficial vulneration, with hæmorrhage of the drum membrane. Lately, Lucae has obviated these drawbacks by making the probe elastic, and dipping its end in a cooling solution (iced water and salt) for a short time. With this he moves the ossicular apparatus by applying from ten to fifteen short successive pressures on the short process. Lucae says that in a certain percentage of cases this treatment has been highly gratifying. Last week I saw him apply this treatment in two cases, whose hearing had indeed been very *much* improved.

Dr. PEGLER remarked—with reference to Mr. Lennox Browne's observation, that deafness was often rendered temporarily worse by

Politization or that improvement followed tardily—that this inconvenience might be avoided by the use of the self-inflator now in common employment at the Central Throat Hospital in London, and designed by Dr. Dundas Grant. The air in this little instrument being charged with chloroform vapour, gained easy access through the Eustachian tube to the tympanic cavity; and the patient being in a position to use the minimum amount of air pressure, the bad results otherwise incurred to the membrana tympani by over inflation are avoided. He was anxious to supplement Dr. Grant's remarks, which were necessarily cut short by want of time, with a mention of what he was sure that gentleman would wish to have said himself on the subject of Dench's graduated Rinne test as an element in prognosis. By employing the whole scale of forks from C to C₄, one arrived at the conclusion that prognosis was unfavourable if Rinne's test was negative for the whole series, but was more hopeful if positive for the high-pitched ones.

With regard to prognosis from the point of view of results of certain methods of treatment, to wit intra-tympanic injections, he had employed several of the usually vaunted remedies, but found, except in one or two cases, but little actual benefit. He had tried solutions of menthol in paroline for about two years, though in rather stronger percentage than had recently been recommended. He thought the results were encouraging, and he was glad the remedy was being given a further trial by others.

Dr. MILLIGAN (Manchester) thought that in considering the prognosis of chronic non-suppurative otitis media, with imperforate membrane, it was necessary to draw a marked distinction between those cases in which catarrhal and exudative changes predominated and those in which adhesive and more organized products were formed as the result of the pathological process.

In the first class of case, the morbid process consisted in a catarrhal inflammation of the tympanic mucous membrane, accompanied by swelling and desquamation and by the exudation of some form of serous or mucous fluid into the cavity. In such cases one or other of the following changes might take place. The fluid might be absorbed or be removed by some method of treatment and the middle ear left practically intact. On the other hand, however, inflammatory products might develop, leading either to abnormal adhesions of intra-tympanic structures, or to a marked want of mobility between the ossicular joints, with the result that more or less loss of hearing would ensue. The intensity of the original process and its duration became therefore very important elements in the prognosis of the case. The more marked the objective changes seen in the membrana tympani the more difficulty would there be in regaining hearing. Thus very opaque, lustreless, retracted, or adherent membranes offered considerable obstacles to successful treatment. He considered the state of permeability of the Eustachian tube, and the changes which took place in the middle ear after inflation, most important factors from the prognostic point of view. He had formulated, for his own guidance, the following hypothesis:—“The amount of hearing which can be estimated to exist in any given

"case after successfully inflating the middle ear, either by means of Politzer's bag or the Eustachian catheter, can generally be maintained, "provided treatment be efficiently carried out." Roughly speaking, he had found this a good basis to work upon. On the other hand, if little or no change in the amount of hearing took place after inflation, and the Eustachian tubes were fairly free, he had found little or no benefit result from treatment.

He considered that the state of the Eustachian tube should always be very carefully investigated, and that in obstructed cases it was essential to procure its permeability if possible, and to treat efficiently any morbid state of the naso-pharyngeal mucous membrane, which tended to favour its closure. He laid great stress upon having the nasal passages in proper working order, and upon having the palatal muscles with efficient tone so that the middle ear might as far as possible be regularly ventilated.

Another important factor to estimate in cases in which cranial perception of the tuning-fork was deficient, was how much of this was due to actual change in the labyrinthine structures, such as might be caused by an extension of catarrh, and how much was due to increased intra-labyrinthine pressure of tympano-mechanical origin. The more inflation improved such cases, and the more positive Rinno's test became after this, the better the subsequent outlook. He considered the surroundings of the patient and his occupation were important entities with which to deal. He had seen many cases of middle-ear catarrh which were certainly aggravated, if not actually caused, by working in close, damp, and overheated rooms. Thus among many of the Lancashire cotton operatives, where the work had to be carried on amidst damp and enervating surroundings, the affection was very common. Nasal, post-nasal, and consequent Eustachian catarrh were very common, and when there was added to this some cachectic or anæmic state of the general health it would readily be seen that circumstances were in favour of establishing obstinate middle-ear catarrh. In addition he was inclined to think that the constant rattle and noise from the machinery was such as to induce slight auditory concussion, which lessened more than ever the hopefulness of the prognosis. He was in the habit of always telling such patients to wear cotton-wool in their ears during the time they worked in the mill, so as if possible to diminish the force of the surrounding sonorous vibrations.

2. The outlook in cases of adhesive catarrh was unfortunately not nearly so good as in the exudative catarrhal form. In adhesive catarrh we have to deal with more highly organized changes, which we could hardly expect to get rid of, either by local applications to the ear itself or by carefully regulating the state of the general health, and the mode of living. In addition the disease was frequently so insidious in its origin that patients rarely came under observation until the process had made very considerable strides. It was also very difficult in many cases to gauge accurately the extent of the inflammatory deposit and its exact situation. In many cases the Eustachian tube would be found quite permeable, at times even too patent. Here, again, the extent of improve-

ment in the hearing after free inflation must be taken as a gauge of what amount of hearing is likely to be attained from energetic treatment. He had found in adhesive inflammation, where the Eustachian tube was free and where no improvement in the hearing resulted after inflation, that the outlook was very bad indeed. He had noted in many such cases, especially among young females, that the activity of the process was much accelerated by the habit of constantly washing the hair. The difficulty of thoroughly drying long hair was such that he always instructed such patients to wet the head as seldom as was compatible with cleanliness, and when it was washed to see that it was well dried. Climate, hereditary tendency, and impaired general health had much to do with aggravating the complaint, and where possible he advised such patients as could afford it to spend the winter and the early spring abroad, in a climate more sunny, dry, and genial than is usually to be found at home.

Speaking generally, in those cases where little or no improvement followed free inflation of the middle ear, where tinnitus was constant and severe, where cranial perception of sound was diminished, where the general health of the patient was poor, where a marked hereditary tendency existed, and where the surroundings of the patient were unhygienic, he found the prognosis to be bad.

On the Care of the Ear during the Course of the Exanthemata.

By WALKER DOWNIE, M.B.

In the presence of so many *confrères* who devote their best energies to the elucidation and treatment of diseases of the organ of hearing, it is unnecessary for me to dwell at length upon the frequency with which the ear is implicated during the currency of certain general diseases.

That the ear is affected in a large proportion of cases of scarlet fever and measles, as well as in many other conditions accompanied by catarrhal symptoms, will, I think, be granted by all present. The far-reaching nature of the mischief resulting is brought under the observation of the aurist almost daily, and the same story is so oft repeated that he is tempted, like many of the laity, to look upon the sequela as not only a matter of course but a necessity.

Before proceeding with the consideration of preventive measures, I desire to direct your attention to the analysis of the first 600 cases of diseases of the ear treated by me at the dispensary of the Royal Hospital for Sick Children in Glasgow, so that by the help of figures the frequency with which serious tympanic disease results may be emphasized, and the importance of this subject more readily grasped.

The patients on whom these observations are based varied in age from seven weeks to twelve years.

Of the 600 cases—

45	cases,	or 7·5 per cent.	were due to eczema of the auricle and meatus.
30	..	5	.. had impacted cerumen.
12	..	2	.. were the result of injury.
7	..	1	.. had furuncular abscess of the meatus.
4	..	·5	.. had foreign bodies in the meatus.

Of the 600 cases, 468 had discharge, but excluding those in which the discharge was due to eczema, to injury, to the presence of a foreign body, and to abscess of the meatus, that is where the discharge originated in the external meatus, the total number of which was 64, there remained 404 cases (67·3 per cent.) with discharge originating in the middle ear. Then 132 cases were unaccompanied by discharge, of which number 97 were middle-ear cases. Thus out of the 600 cases there were 501 cases of middle-ear disease (404 with, and 97 without discharge), that is, in 83·5 per cent. of the total number who applied for treatment the tympanum was affected.

Coming to the cause assigned in those 501 cases of tympanic involvement, we have the following list :—

131 cases, or 26·1 per cent. originated during an attack of measles.					
63	“	12·6	“	“	“ scarlet fever.
15	“	3	“	“	“ whooping cough.
3	“	·6	“	“	“ mumps.
147	“	29·4	“	were catarrhal in origin.	
101	“	20	“	originated during the eruption of teeth.	
8	“	1·6	“	were syphilitic in nature.	

Of the remaining 6·7 per cent., the history obtainable was so indefinite or uncertain in character as to render it unreliable ; and I may here say that in considering causation, doubtful statements were carefully excluded, and every possible care was taken to get reliable data.

The number of cases stated as originating during the course of measles and scarlet fever, though large, forming as they do two-fifths of all the middle-ear cases examined, does not indicate the number of cases in which the ear is affected during the currency of those diseases, but rather points to the proportion of chronic ear affections which follow on them. Many acute cases prove fatal, while others, on account of their acute character, have active treatment applied, by which structural changes are prevented, and the ear in many cases is restored to its normal condition.

When a child suffers from measles or scarlet fever the fauces and pharynx are in almost every case affected to a greater or less degree. Whether the throat is primarily affected, that is whether the infective material gains entrance to the general circulation by absorption from the fauces and pharynx, is not the question before us at present, but that the throat suffers in a very large proportion of cases is known to all. The angina of both measles and scarlet fever is said to have a very special tendency to extend by continuity of surface to the nares and to the Eustachian tubes. As it extends along the latter passages to the tympanum the walls of the affected tube become swollen, its calibre is diminished in proportion to the degree of tumefaction, frequently it is completely occluded, and the morbid secretions greatly increased in quantity as a part of the specific inflammation are retained within the cavity of the middle ear. This course of events is most frequently met with in those who have enlarged tonsils, and especially if there be, as is so often the case, hypertrophy of the lymphoid tissue in the nasopharynx as well. Where such swellings are present the tubes are more

readily and more completely blocked at their pharyngeal orifices by the early implication of the gland-tissue surrounding them. A similar series of events may follow a naso-pharyngeal catarrh in children who are affected with hypertrophy of the faucial and pharyngeal tonsils. It is much more common than is generally supposed, but as the deafness which accompanies each cold practically disappears as the catarrhal symptoms subside, little attention is paid to the aural disturbances. The ear-ache also, which occurs during dentition, is usually of this same nature. It is not a neuralgia as is so frequently supposed, but a tubo-tympanic catarrh, and the pressure of the secretion pent up in the middle ear is the cause of the pain referred to that region.

The local symptoms associated with those conditions are the same though they may vary considerably in severity; there is pharyngeal discomfort or pain, followed by dull sounds in the ears, by dulness of hearing, and then by pain in the ear. Preceding the more severe aural symptoms there is increased secretion of mucus in the naso-pharynx which tends to be retained within the cavity, and the presence of this tough mucus is the first item interfering with the patency of the Eustachian tubes. If you take a child suffering from a recent cold in the head with deafness, and use Politzer's inflation bag, you will force a large collection of tough mucus from the post-nasal space into the mouth, and you will at the same time improve the patient's hearing. The Eustachian tubes had been closed, not from inflammatory swelling of their walls, but by having the pharyngeal orifice of each covered with the tough secretion which served to seal their lips. The removal of the secretion permitted ready and free inflation, thereby at once restoring the normal air-pressure within the tympanum.

When the catarrhal process is more acute the inflammation affects the lining membrane of the tubes along which it extends to the tympanum. The tubes are then not only sealed by the mucus collected in the post-nasal space, but they are narrowed by the swelling of their walls, and the inflammatory products found within the tympanum cannot escape, the result being that their presence in the middle ear causes pain by pressure. This stage may be reached hurriedly and without much warning. The child may have gone to sleep, but suddenly he wakes crying, and if old enough will direct attention to the ear, and he may continue for a considerable time to cry bitterly or to give other evidence of suffering severe pain. Hot sedative applications may be made and may afford relief, or the pain may persist for many hours, to disappear as suddenly as it appeared, and this without discharge showing through the external meatus. This latter fact often leads the medical adviser, as it does the parents, to look upon the ear-ache as a neuralgia.

Now the explanation of the sudden relief is that the blob of mucus occupying the post-nasal space has become dislodged, the pressure of the fluids within the tympanum has become sufficient to overcome the resistance met with in the Eustachian tubes, and the pent-up secretions have escaped through the tubes into the pharynx. Where the blockage is more complete and not so readily overcome, such cases may, as the secretion within the tympanum increases in quantity, develop symptoms

closely resembling those of meningitis, for which it may be, and not infrequently is, mistaken. The implication of the ear in the majority of those slighter cases is recovered from without suppuration, and without the integrity of the tympanic membrane being sacrificed. In measles and scarlet fever it is otherwise, though the early stages of the inflammatory process are the same. It is often supposed that the difference is due to the inflammation of the throat being more severe than is met with in simple catarrh, that it is of a suppurative character, and that the *streptococcus pyogenes* and the *staphylococcus aureus* which are present travel along the Eustachian tube to excite suppuration in the tympanum. But as a matter of fact it is not these cases with extensive suppuration of the fauces and pharynx which most frequently become complicated with suppuration of the middle ear, but it chiefly occurs in those with symptoms of faucial and pharyngeal catarrh. In the 501 cases of middle-ear disease analyzed, 131 cases (26·1 per cent.) were due to measles, and 63 (12·6 per cent.) to scarlet fever. The chief point of difference is of a mechanical nature. In simple catarrh the child throughout the day is not confined to bed, but is permitted to run about freely ; so with the patient in the upright position the increased pharyngeal secretion is prevented from collecting to any extent within the naso-pharynx.

When a child is suffering from measles or scarlet fever he is confined to bed day and night, and during the greater part of the twenty-four hours he lies in a dorsal position. This position favours the retention of secretions within the hollow of the naso-pharynx, and in addition, from the altered direction of the Eustachian tubes, the inflammatory products of the middle ear could not readily escape, even supposing the tube to remain patent. The consequences are that catarrhal inflammation accompanying measles and scarlet fever is soon followed by suppuration, the lining membrane of the tympanum becomes necrosed, the tympanic membrane is ruptured, and the bony cells surrounding and communicating with the tympanum are filled with the products of suppuration.

And this leads up to the consideration of the means for the modification of middle-ear catarrh and the prevention of its complications during the course of the exanthemata, to which it is my object to draw your attention.

From the very beginning of the illness, where there are any catarrhal symptoms, the patient should be directed to use the handkerchief frequently and strongly, and the nurse in attendance should see this carried out. By this means nasal discharges are got rid of through the anterior nares, and the air in passing with considerable force from the lungs towards the nose helps to loosen and dislodge any discharge lying within the naso-pharynx.

If the child is too young to do this efficiently, or if there is enlargement of the faucial tonsils and adenoid vegetations in the naso-pharynx, Politzer's inflation bag should be resorted to. In performing inflation the child may be in the recumbent or sitting position, and he is directed to open his mouth and to breathe out strongly or to say ho ! or hick ! and while in the act of doing either the air is forced along the nose. The

quantity of secretion dislodged and thrown into the mouth by this proceeding will astonish those who have not used the bag under such circumstances, and convince them of the necessity of having the air-way cleared. One or other of those methods should be adopted in every case, and without waiting for the appearance of symptoms pointing to implication of the ear. When, on the other hand, there is dulness of hearing, sounds or pains in the ears, etc., resort to inflation should never be delayed, as those symptoms point to closure of the Eustachian tubes, and to retention of secretion within the middle ear, relief from which may be instantaneously secured, in the majority of cases, by complete inflation.

Some hesitate to use Politzer's bag while the aural passages are inflamed, lest rupture of the membrane should result. This rarely happens, and I speak only after considerable experience : but even when it does occur no harm follows. The resulting perforation is slit-like, and it heals readily, whereas if the condition is left to nature, as it is termed, the perforation, which only occurs after serious and too often irreparable damage to the structures within the tympanum has occurred, is circular in form, due to the loss of tissue, and is therefore exceptional.

When the case does not come under observation till a later stage and the pain in the ear is acute, and should immediate relief not be obtained from inflation, the membrane should be examined and incised without delay, especially if there be a sudden rise in temperature without any other explanation. Paracentesis of the membrane, or myringotomy, as this little operation is termed, is sadly overlooked : it is certainly not had recourse to in anything like the number of cases in which it is called for, and yet it is a very simple and safe operation when performed under appropriate conditions. These conditions are (1) to have the head securely held ; (2) to have the membrane clearly visible and brightly illuminated ; (3) to use an arrow-shaped paracentesis knife, or myringotome, with a shoulder ; and (4) to puncture the membrane in its lower and posterior part where bulging is usually most marked. The result again is a slit-like opening, which, after permitting of the thorough removal of the pent-up secretion, readily heals. This operation, performed timeously, is of incalculable benefit to the patient, for it not only relieves the immediate pain, but saves the deeper structures of the ear, and prevents the misery of a chronic otorrhœa, with its numerous attendant risks.

I have referred to the fact that the ear is affected most readily in those whose tonsils are enlarged, and when the adenoid structures in the naso-pharyngeal cavity are hypertrophied. In those cases secretion is increased in quantity, and there is considerable structural obstruction to its free escape. It will thus occur to all that the removal of such hypertrophied tissue is an important preventive measure, which should be advised and carried out when such growths are known to exist, and while the child is in good health. The consideration of these and other necessary measures are, however, beyond the scope of this communication, which is intended to deal with prevention during the course of the exanthemata.

DISCUSSION ON DR. WALKER DOWNIE'S PAPER.

Dr. MCKENZIE JOHNSTON (Edinburgh) thought Dr. Walker Downie's paper one of interest and importance, especially to the general practitioner. He thought that the attention and treatment of the nasal catarrh, coming on after the exanthems, was of great importance. But he thought that this treatment might be of service, not only during the attack, but *after* convalescence from the exanthemata, in removing the local throat conditions which tended to cause middle-ear affections later on.

Dr. BARR referred to the absence of information regarding the very early stage of purulent disease of the middle ear originating in scarlet fever. The usual view is that rapid purulent formation takes place with pressure upon and bulging of the membrane, which, if incised, would probably avert the subsequent destructive process. Dr. Barr thought that in many cases the destructive process was very rapid and complete, the process being more of the nature of sloughing, which no early paracentesis of the membrane would prevent. Dr. Barr based this opinion upon a case which came under his observation, and which he had the opportunity of closely watching.

Dr. WALKER DOWNIE : I quite agree with Dr. McKenzie Johnston that aural affections associated with the exanthemata assert themselves most prominently after the child has recovered from the fever.

(To be continued.)

**ELEVENTH INTERNATIONAL MEDICAL CONGRESS
IN ROME.**

SECTION OF LARYNGOLOGY.

(Continued.)

**ON RETROGRESSION OR SPONTANEOUS CURE OF
PHARYNGEAL AND NASO-PHARYNGEAL TUMOURS.**

A Clinical Contribution.

By Dr. ANTONIO D'AGUANNO (Palermo).

Amongst the various metamorphoses of a retrogressive nature which may be met with in tumours, there are those which, although rare, sometimes lead to the total or partial destruction of the neoplastic mass, and thence to its diminution or complete disappearance. This event, which may happen in all tumours, including malignant ones, has especially been brought to light by the study of naso-pharyngeal tumours, because it arises with relatively greater frequency in them, and is accompanied by marked phenomena, such that tumours which appeared to place the life of the victim in danger from one moment to another, on arriving at a certain point of their development commenced, contrary to every expectation, to decrease, so as to disappear more or less completely.

"In the history of science," writes Prof. Massei,¹ "classical examples are known of individuals affected with naso-pharyngeal fibroma, who were a prey to atrocious sufferings and were abandoned to certain death, but in whom, on the contrary, a palliative treatment or physiological powers alone worked miracles, *i.e.*, the disappearance of the tumour."

Gonclin, quoted on this subject by Duplay,² was perhaps one of the first to publish an observation on this subject. His conclusions are as follows:—"In short, here is a young man of twenty-two who nearly died of a suffocative naso-pharyngeal fibroma. A palliative treatment has staved off death, and afterwards has prevented the tumour from being suffocative. At the age of twenty-four and a half, at a time when no surgical treatment was being carried out, the remains of the tumour disappeared spontaneously. They were reabsorbed and not eliminated. A reappearance, of which we do not exactly know the history, took place in the orbital and naso-cranial direction. The symptoms of compression of the eye and brain disappeared, and in short the patient appears cured."

Other cases of retrogressive and spontaneous cure of naso-pharyngeal fibromata have been observed by Legonet, Velpeau, Lafont, Guyon, Labbé, Juillaux, and Duplay. Besides Velpeau has observed that there is nothing extraordinary in this fact, since one not unfrequently meets with retrogression of uterine fibroids at the menopause. And similarly to these cases in the uterus, others of spontaneous cure have been cited for the ear and the larynx. Gompertz³ has observed spontaneous atrophy of aural polypi after antiseptic douching. A like result, though very rare, has been observed by Politzer,⁴ and in this he is in accord with Toynbee, von Trötsch, Moos, Schwartze, and others. The spontaneous fall of these polypi has generally been noted after torsion of the pedicle. On the other hand, Massei, at the first meeting of the "*Società Italiana di Laringologia*," recorded the spontaneous disappearance of laryngeal papillomata after tracheotomy only.

In cases of cutaneous tumours, also, the partial reduction or total disappearance has been noted. Prof. Jansini, whom I consulted on the subject, referred me to a case he had met with of extensive angioma on the face of a youth; a spontaneous and considerable reduction took place in a short period.

Without spending more time in the field of general pathology, and confining our attention to the pharynx and naso-pharynx, I would note that spontaneous disappearance is very common, even the rule with regard to adenoid tumours of the naso-pharynx. In truth these are not tumours in the true sense of the word, since indeed they are formed of hyperplastic tissue, altogether similar in structure to follicles, chiefly formed of lymphoid tissue, so that they pass through a well-marked cycle of existence. Indeed, according to the statistics of Meyer, these vegetations are found between the ages of five and twenty-five, rarely at a more

¹ "*Patologia e terapia della faringe, delle fosse nasali, e della laringe*," vol., i. p. 336.

² Duplay and Reclus. "*Traité de Chirurgie*," vol. iv.

³ "*Monatsschrift für Ohrenheilkunde*," 1881.

⁴ "*Traité des Maladies de l'Oreille*," 1884.

advanced age. This is explained by the diminished tendency in the adult to hypertrophy of Luschka's tonsil, and to the spontaneous disappearance of the hypertrophied masses after this period of life. Moldenhauer,⁵ although not denying this possibility, believes little in its frequency, and explains the diminution of the symptoms produced by the vegetations by the increase in the dimensions of the naso-pharynx.

So also Luc and Dufief⁶ show that spontaneous disappearance can take place—not during adolescence, however, but much later. This opinion is not exactly shared by Chatellier,⁷ who has always observed that after fifteen years of age, at the latest, the adenoid tissue of the naso-pharynx enters into a retrogressive phase, its activity diminishes, and its volume decreases:—"The tumours formed of adenoid tissue," he concludes, "have therefore a limited existence, and tend of themselves and in their 'normal evolution to atrophy and disappear.'" However, if this is the rule for the lymphoid productions of the naso-pharyngeal space, it is not so for true tumours, for which it is the exception. We have seen in the case of Gonelin what may sometimes happen in the case of the fibromata, which, although in themselves benign, from the site they occupy have frequently a fatal termination. The following is the case of a benign tumour of the posterior wall of the pharynx, occurring in private practice and ending in spontaneous cure:—

Observation I.: *Benign Tumour of the Posterior Wall of the Pharynx; Imminent Danger of Asphyxia; Spontaneous Cure.*

On March 10th, 1891, Dr. Damiani, from Morreale (near Palermo), brought me a boy, aged three. The parents of the little patient related that for a year past they had noticed that their child had attacks of difficulty in swallowing and breathing. As these symptoms slowly increased and the voice became nasal, their attention was directed to the throat, where Dr. Damiani found a pharyngeal tumour. An internal treatment of iodide of potassium and other resolvents was tried without success, and as the respiration became more difficult, I was called in consultation. The child was of robust constitution, his florid and well-developed appearance contrasting with his evident suffering in respiration, the inspiratory *bruit* being audible at some distance, and the epigastric region indrawn. Passing to the examination of the fauces, I noted in the median line of the posterior wall of the pharynx a hemispherical tumour, of the size of half an egg, with a large base extending downwards to the larynx, and obstructing greatly the passage of air and the movements of the palate. It was of fibrous consistence, analogous in colour to that of the pharyngeal wall, and presenting on its superficies numerous lacunæ, similar to those observed on hypertrophied tonsils. No ulcerating spot was visible.

Having excluded the idea of an indurated gumma, a malignant tumour, an idiopathic retro-pharyngeal abscess (to which Massei has drawn attention in the "Archivi di Laringologia," 1883, Fasc 2), or an adenitis of the prevertebral ganglia, nothing remained but to admit the presence

⁵ "Traité des Maladies des Fosses Nasales." Traduction par Potiquet, p. 173.

⁶ "Revue de Laryngologie, d'Otologie, etc." Dec., 1890.

⁷ "Des Tumeurs Adenoides du Pharynx." 1886. p. 60.

of a benign tumour. Postponing for a more suitable moment the histological examination for a differential diagnosis, the important thing was to pass at once to the removal of the tumour in order to ward off asphyxia. After consultation with Dr. Aricò, it was decided to operate after tracheotomy. The parents, however, decided to temporize, and an internal palliative treatment was prescribed. They returned home, and the child continued during several days to go from bad to worse, so that it was reduced to the lowest ebb. However, slowly, and without any appreciable cause, the respiration commenced to improve, became freer, while deglutition became easy, and within a few months the child became as bright as ever.

Three years have now passed since I examined the patient, and the local physician assures me that the child is completely cured, and that no trace of the tumour is to be found in his throat. To what class should we assign this growth? Without doubt, to the category of benign tumours; of these the most commonly met with in the pharynx are the papillomata. With regard to adenomata, they might also be met with, as the tissue of the naso-pharynx is rich in solitary glands and glandular elements. However, in the absence of histological examination, we cannot refer the tumour to the adenomata, but rather to the fibromata, in consideration of its situation, consistence, colour, and large base; or else to the class of fibro-adenomata, like the case of Luc, reported in the "*Archiv. Intern. de Laryngol.*," No. 2, 1891.

Passing now to malign tumours, spontaneous cure is very problematic, and, if it does occur in certain exceptional cases, it is only apparent, as Ziegler well says of cancer ("*Pathology*"), as parts remain in the tissues which may germinate from one moment to another and reproduce the tumour. However, if the total disappearance of malignant tumours is very rare, it is not infrequent to meet with the partial reduction of sarcomata and carcinomata. This probability is worthy of being taken into consideration, especially with regard to the naso-pharyngeal space. Individuals with enormous sarcomata in this locality, especially young people, where a fatal termination was declared to be threatening, sometimes survive for years in spite of every prevision, and owing to partial reductions of the neoplasms.

The following is a case of hæmorrhagic sarcoma in which I had prognosticated a fatal termination to be threatening, and where this was not realized. [Here follow full notes of a fibro-sarcoma in the naso-pharyngeal space of a boy of thirteen:—Propagation to right nostril; death imminent from asphyxia; improvement consequent on spontaneous hæmorrhage and gangrene; relapse after two years.]

How does the reduction and spontaneous disappearance of a tumour take place? I do not take account of the disappearance of tumours, even benign ones, in consequence of morbid parasitic infection (erysipelas, typhoid, etc.), because in these cases one has not to do with *spontaneous* disappearance, but one has to do with the influence (in this case a beneficent one) of the bacteria special to these affections. We may establish as an axiom that a profound alteration must take place in the web of the walls of the vessels, and in their contents. "Pretty frequently," says Ziegler (vol. i., p. 273, *op. cit.*), "retrogressive alterations take place

“in the tissue of the tumour, and especially in rapidly-growing tissues rich in cells. Fatty and mucoid degeneration, necrosis, caseation, softening, gangrene, hæmorrhagic infarction, calcification, pigmentation—in fact, all those retrogressive changes which we have seen in normal tissues may also take place in tumours. Inflammation is also fairly frequent. Owing to these processes a tumour may suffer partial destruction. Not rarely cavities of softening or ulceration are formed, in which the breaking down of the neo-formation progresses at times rapidly and at times slowly.”

And Süke writes :—“The retrogressive metamorphoses and diverse alterations that take place in tissues may lead to the breaking down and total or partial gangrene of tumours. The latter is not a rare fact. It is frequently verified in a partial way in tumours where the growth of vessels has not kept pace with the development of the tumour. The purely cellular tumours are especially liable to this. Also gangrene of neoplasms, ulcerated or non-ulcerated, may take a progressive form, destroying the tissue in strata, so that in the end the entire tumour becomes gangrenous, and perhaps a further progress of the process takes place into the matrix. In this way the entire tumour may be completely carried away from the body. In non-ulcerated tumours the gangrene is manifested, as a rule, all over, and spontaneously, although occasional external causes may be at work. Spontaneous gangrene, as a rule, finds its cause in the alteration of the vessels—arterial thrombosis, compression of the veins, œdema, and capillary thrombosis. In this way a spontaneous cure may take place, and numerous observations of this have been made. Even malignant tumours are curable, as they may by some accident become separated by gangrene.”

After these explanations from two such well-known observers, I need add no word of my own. I would note that in the first of the two cases the disappearance probably took place in consequence of fatty metamorphosis of the cellular elements; in the second case it would appear that, owing to changes in the vessels, frequent hæmorrhages and suppuration lead to diminution of the tumour.

The conclusions at which we may arrive are the following :—

1. The reduction or spontaneous disappearance, such as may take place in tumours in general, may also occur in neoplasms of the pharynx and the naso-pharynx.
2. This retrogression may take place not only in benign tumours and adenoid vegetations, in which it is almost the rule, but also in neoplasms of a malignant nature, and especially in those very rich in vessels.
3. The retrogressive phase occurs most frequently, in addition to the cases of special parasitic infection, through alterations in the walls and contents of the vessels.

COLOURING LIQUIDS IN PULMONARY AFFECTIONS.

By Dr. HERYNG (Warsaw).

He first wished to know where colouring liquids penetrated, when introduced into the trachea of living dogs and rabbits. He then studied

the reaction developed in the pulmonary tissue of rabbits when injected through the thoracic wall. Injections of pyoktanin were made in doses of sixty to one hundred and twenty cubic centimetres. The author could not absolutely affirm the curative efficacy of this method; however, he was convinced that injections of weak solution of pyoktanin can be made through the trachea into the lungs of phthisical patients without giving rise to symptoms of inflammation. In a tubercular patient, into whose trachea he had injected fifty cubic centimetres of a weak solution, repeating it after ten minutes, there was neither cough, nor attacks of dyspnoea, nor symptoms of pulmonary irritation.

Dr. BOTEV (Barcelona) held that intra-tracheal injections were destined to be of great service in the future. They were easily employed because of the slight sensitiveness of the lower rings of the trachea, and of the bronchi. They were valuable because the absorption by this route was greater than from the digestive tube or from the hypodermic tissues.

ON THE VALUE OF ELECTROLYSIS IN LARYNGOLOGY.

By Dr. DE TYMOWSKI (Nice).

This communication aims at raising a discussion upon the application of electrolysis. In many cases, especially in gynæcology, a current much too strong is employed. It is to Dr. Perrigaux that we are indebted for instruction in the micro-chemical details of electrolysis. His studies demonstrate that it is always necessary to bear in mind the difference in action of the different poles. In most cases it is necessary to employ the negative pole, and never both poles together. Electrolysis cannot be compared with the galvano-cautery. It acts as a resolvent and an anti-septic, and provokes no inflammatory reaction. It is of service in granular pharyngitis, chronic rhinitis, hæmorrhagic laryngitis, pachydermia, and to destroy the remains of polypi extirpated.

It is necessary in the application of electrolysis to employ a rheostat and a good galvanometer.

ELEVENTH INTERNATIONAL MEDICAL CONGRESS IN ROME.

SECTION OF OTOLOGY.

(Continued.)

NOTES of a FORM of MIDDLE-EAR DISEASE associated with ADENOIDS, and occurring in some cases of DEAF-MUTISM.

By J. LOCKHART GIBSON.

In a paper read by me at the Third Intercolonial Medical Congress (September, 1892), attention was drawn to what I think a useful division

of the forms of deafness associated with adenoid growths in the nasopharynx. Reasons for distinguishing four varieties of deafness were given, and explanations, founded upon cases, of the manner in which deafness could be induced by these growths. It was of course admitted that combinations of the four different forms existed, but it was urged that a sufficiently definite line could be drawn to make the distinction between them valuable in many cases, if only for prognostic reasons. It is not the province of this paper to again describe the four varieties in detail. Mention of all but one variety will be sufficient. They are—

1st. Deafness due to simple Eustachian blocking (direct or indirect). Prognosis favourable, provided the adenoids be removed.

2nd. Deafness due to recurrent attacks of acute perforative middle-ear catarrh. Prognosis generally favourable, provided the adenoids be removed, and provided the tympanic membrane has not been too much destroyed, which in children is seldom the case on account of the purulent contents of the middle ear escaping as a rule easily through their membranes, and through a small perforation.

3rd. Deafness due to chronic middle-ear catarrh. Prognosis guarded, but inclined to be favourable. Frequently very good hearing obtained, provided that Politzerization or catheterization be persevered with for a considerable time after removal of the adenoids. Most hopeful in cases under sixteen or seventeen years.

4th. The variety of deafness to which this paper is intended to draw attention. I have considered it to be due to recurrent attacks of sub-acute middle-ear catarrh, *i.e.*, to attacks which, though often somewhat painful, have not been sufficiently acute to lead to rupture of the tympanic membrane, although the amount of exudation has been considerable. It has seemed to me that this exudation, not finding exit, is deposited upon the chain of ossicles, upon the membrane, and in the angle of junction of the membrane and the tympanic walls—*i.e.*, at the situation of the tympanic ring—and that with each successive attack a portion of this exudation leads to organized thickening where it has been deposited. If, after a few such attacks, an acute attack supervene, the membrane, having been thickened, ruptures after more than the usual delay in a child, and after considerable pain.

It is in such cases that one gets an opportunity of puncturing the membranes of children, and of relieving them of symptoms simulating meningitis, and often very alarming. I have had to puncture both membranes of a child of six years for such symptoms. Pus was liberated from each ear, and the head symptoms relieved.

An attack of acute catarrh can, it seems to me, be looked upon as to some extent curative, as it leads to absorption of the deposit, and also to a cicatrix in the membrane, which will rupture more easily during any subsequent less acute attack. If no acute attack occur, the thickening and clogging increase with each subsequent attack of subacute catarrh, and the membrane assumes a very distinctive appearance. It is, as a whole, cup-shaped, especially in its inferior quadrants. It is thickened and opaque, but glistening, unless an attack exists at the time of examination, when its appearance is altered from the presence of the subjacent

exudation ; there is no posterior fold, but the handle of the malleus is directed much backwards, and often in a line with a pronounced anterior fold. This misdirection of the handle of the hammer causes the posterior segment of the membrane to be very narrow. The absence of a posterior fold, with a narrow posterior segment, and a generally cup-shaped, thickened, but glistening membrane, is very distinctive of these cases, and, in addition, a pronounced peculiarity is the existence of a marked opalescent crescent at the junction of the inferior quadrants with the tympanic ring. This crescent, and the general cup-shaped appearance of the membrane, I have surmised to be due to an organization in the position of the deposit at the junction of the membrane with the tympanic ring, especially in its inferior part.

In this form of deafness the prognosis is most unfavourable. Ordinary treatment is seldom productive of much good after the condition has become well established, though one sees many cases which yield to treatment on account, it seems to me, of the changes not having become sufficiently fixed. Recognition of it is most important for prognostic purposes, and it will be found to be answerable for a certain proportion of cases of deaf-mutism. Two brothers were brought to me on account of deaf-mutism. The first I saw, aged six years, had apparently heard well until nearly twelve months of age, and had learnt to say "Ma" by then. About that time deafness was noticed, and was soon found to be very great. It grew greater as he grew older. His parents thought when I first saw him that he could hear a loud sound, such as a gun going off close to him. He was a delicate-looking boy, but proved to be bright and intelligent. His attention could be attracted by no ordinary sound, however near either ear. But perception for bone-conduction seemed good. Each membrane presented the appearance described under the head of advanced cases of recurrent subacute middle-ear catarrh. There was no sign of recent deposit. They moved very imperfectly to Siegel's air-pump. His naso-pharynx was largely occupied by adenoids, which were of unusually dense consistence for so young a child, and pressed distinctly against the pharyngeal surfaces of the Eustachian tubes. Prognosis given was very guarded to unfavourable, but removal of the adenoids advised. They were thoroughly removed, and he was treated for some six months afterwards, first imperfectly by Politzerization, and latterly by catheterization. By this means the middle ears were regularly inflated, and the Eustachian tubes rendered patent. The membranes became more movable, but were in other respects little altered. He soon improved to hear loud sounds, and even to repeat easy sounds after me (without having seen my lips produce them), but not sufficiently to have hearing which could prove of any but a slight help in teaching him to speak. His general health improved markedly.

In this case my diagnosis was recurrent subacute catarrh, induced by adenoids, which had grown to a considerable extent before he was twelve months old. I believe that if these had been removed before that age his hearing would most likely have been retained. In favour of this view is, I think, the fact that a younger brother, aged five years, had become deaf and dumb in a precisely similar manner, and at a similar

age, but, probably owing to his being younger, not to so great an extent. He could say one or two words more than his brother, and could still have his attention attracted by a loud sound. His membranes had practically the same appearance, and his naso-pharynx was well occupied by adenoids of a dense consistence. None of the supposed hereditary causes of deaf-mutism could be ascertained, and neither had suffered from any illness which could account for deafness.

A third case, somewhat similar, was that of a little girl, aged four years, but she had some slight indications of hereditary syphilis, and I was unable to convince myself that she possessed perception of sound to bone-conduction. Her naso-pharynx was small and full of adenoids. Removal of these did not restore hearing, and I failed also to cause improvement by perforating one of the membranes in its posterior segment with an electro-cautery point. In the cases of the two brothers I would not be satisfied that everything had been done to improve hearing until their membranes had been perforated.

The case of a lad with unilateral deafness associated with adenoids, which, while pressing firmly upon the tubal orifice of the deaf side, were separated by a sulcus from the tubal orifice of the other side, lends support to this view. The adenoids were found to be of very dense consistence, and the ear of the side against whose Eustachian tube they pressed was in a condition similar to those of the deaf-mute brothers. The other ear had half of natural hearing. This ear improved to normal quickly after removal of the adenoids; the other ear hardly improved at all, although its Eustachian tube recovered its normal patency. His perception for bone-conduction was excellent. He had been deaf on that side as long as he could remember.

It seems to me that these cases point very decidedly to the importance of examination of the naso-pharynx in very young children who show signs of deafness or of being mouth-breathers, as the removal of adenoids in infancy may prevent them from becoming incurable deaf-mutes, not to speak of preventing the other dangers which are run by mouth-breathers. The youngest child from whom I have removed adenoids was aged seven months; they were numerous, but were easily removed by the unarmed finger-nail.

ABSTRACTS.

DIPHTHERIA, &C.

Anfrecht (Magdeburg).—*An Early Fatal Complication of Diphtheria.* "Therap. Monats.," March, 1894.

IF diphtheritic patients die during the first days of the disease, without a progressing bronchial diphtheria, the cause is generally parenchymatous nephritis. Therefore the urine should be examined in all cases for albumen or decrease in amount, especially in cases in which the mind is

disturbed at an early period. Free administration of alkaline waters, as Wildungen, is the best treatment for this nephritis. *Michael.*

Townsend, C. W.—*Primary Nasal Diphtheria.* "Boston Med. and Surg. Journ.," May 24, 1894.

FIVE primary and two secondary cases, with charts, are reported. In all the Klebs-Loeffler bacilli were demonstrated—in one case, indeed, having them demonstrated in the nose five weeks after the discharge ceased, and at the previous culture none were found, though they must have been present. The fever was always slight, the temperature being rarely higher than 100° Fahr. Attention is drawn to the frequency of mild attacks; the likelihood of confusing the cases with the ordinary coryza. *R. Lake.*

McPhedran, A. (Toronto).—*Diphtheria—Death from Embolism of Basilar Artery.* "Canadian Practitioner," Oct. 1, 1892.

A CHILD, twelve years old, developed pharyngeal diphtheria on May 30th. By June 4th she was convalescing satisfactorily. At three o'clock on the morning of the 5th she took nourishment, and desired her nurse to rest. A few minutes later she breathed deeply, and before the nurse could reach the bed she was unconscious. Coma deepened and she died at nine a.m. At the autopsy a firm white embolism was found lodged at the bifurcation of the basilar artery; its origin could not be ascertained. *George W. Major.*

Ehrlich, Kossel, Wassermann (Berlin). — *Fabrication and Application of Diphtheria Heil-serum.* "Deutsche Med. Woch.," 1894, No. 16.

IN the Institute for Infectious Diseases the author made experiments on the preparation of serum for treatment of diphtheria. The best animals for this purpose are goats, which are naturally immune, and can also bear strong intoxications with diphtherin without damage. They are rendered immune by increasing doses of cultures of virulent bacilli. By this method the toxic dose is injected at the same time as the curative serum. As a toxine, test fluid prepared by Behring of diphtheria bacillus is used. In these animals they obtained the result that 1·5 serum and 0·075 milk were sufficient to neutralize one cubic centimetre of Behring's test poison. With this new fluid two hundred and twenty cases were treated, with 76·4 cures. Of the tracheotomized cases, thirty (equal 55·1 per cent.) were cured. Of those children on whom the treatment was begun on the first day of the disease, one hundred per cent. were cured; on the fifth day, fifty-six per cent. The earlier the treatment begins the better the chances for cure. It may be hoped that by application of larger doses of serum the statistics will be improved. The authors conclude that the prognosis of the sick children depends on the treatment in the first days of the disease. The serum therapy must be begun in the first days. *Michael.*

Behring and Ehrlich (Berlin). — *Diphtheria Immunization and Cure.* "Deutsche Med. Woch.," 1894, No. 20.

POLEMIC on Schering's antidiphtherin by Dr. Ahronson. *Michael.*

Schubert (Reinerz).—*Chlorine-water a specific against Diphtheria*. "Deutsche Medicinalzeitung," 1894, No. 20.

THE author concludes that chlorine-water is the best medicament against diphtheria; it is a specific; it is also the best protective agent, and should be given as two liq. chlori to one part water, one teaspoonful every three hours; as a prophylactic, three teaspoonfuls a day. *Michael.*

Behring (Berlin).—*Cure of Diphtheria*. "Deutsche Med. Woch.," 1894, No. 15.

POLEMICAL article against Dr. Ahronson's recommendation of the diphtheria antitoxin solution (Schering). *Michael.*

Ahronson.—*Cure of Diphtheria*. "Deutsche Med. Woch.," 1894, Nos. 17 and 19.

ANSWERS to the paper of Prof. Behring. *Michael.*

Behring.—*Cure of Diphtheria*. "Deutsche Med. Woch.," 1894, No. 17.

REPLY to the paper of Dr. Ahronson. Polemical articles concerning Schering's preparation.

Seibert (New York).—*Submembranous Local Treatment of Pharyngeal Diphtheria*. "Jahrb. für Kinderheilk.," Band 37, Heft 1.

THE author injects twice a day two to six syringefuls of aqua chlorata (four per cent.) under the mucous membrane by aid of a curved Pravaz syringe. Of one hundred and eighty-nine cases of diphtheria (Loeffler's bacilli were found in all), only seven per cent. died. The general mortality of this epidemic was thirty-eight (nine per cent.) The number of injections depend on the extension of the pseudo-membrane and the general health. The patient also must gargle with a solution of tr. iod. 20; pot. iodat. 10; acid carbol. gtt. x.; aq. dest. 1200. *Michael.*

PHARYNX, &c.

Unna (Hamburg).—*Hygiene of the Mouth and Chlorate of Potash*. "Monats. für Prakt. Dermat.," Band 17, No. 9.

THE author recommends the application of this drug, as a tooth paste, in fifty per cent. solution. *Michael.*

Rosinski (Königsberg).—*Gonorrhœal Diseases of the Mouth*. "Zeitschrift für Ohrenheilkunde und Gynakologie," Band 22.

THE author has examined five cases of gonorrhœa of the mucous membrane in newborn children. Macroscopically, there was a white-yellowish discoloration of the palate on both sides of the raphé. It was not a true pseudo-membrane, but a superficial purulent infiltration of the tissue. Between the connective tissue and the epithelium the specific micro-organisms could be found. Spontaneous cure followed after some weeks without any cicatrices. *Michael.*

Mettenheimer.—*Soor at advanced Age.* "Memorabilien," January, 1894.

DESCRIPTION of some cases in which soor arose in the mouth of marasmic or sick aged people. If the affection is not treated in a rational manner the patient sometimes dies from cachexia. *Michael.*

Siegel (Britz).—*The "Mundseuche" of Men and the "Klauenseuche" of Cattle.* "Deutsche Med. Woch.," 1894, Nos. 18 and 19.

IN No. 91 of the "Deutsche Med. Woch." the author has described an epidemic of "Mundseuche" (see report in this Journal for 1892 and 1893). He had observed epidemics of the disease. The symptoms of the disease were the same as those described at that time. The presence of vesicles on the mamillæ of nursing women is also noticed. Concerning the therapy of the disease, the internal use of salicylate of soda has had nearly as specific effect as in acute rheumatism; also sodium dithiosalicylicum gave good results. The best local treatment of the vesicles was touching with nitrate of silver. Of the serum treatment not much good is reported. The bacteria described by the author are confirmed by further investigations and by some well-known bacteriologists. In a child dead of the disease in the *post-mortem* examination swelling of the solitary follicles of the intestine was found combined with ulceration. Also the Peager plaques were red and swollen and the mesenteric glands enlarged. By inoculation of the bacilli in calves the disease could be produced, so that the specificity of them is proved. The same bacillus as that found in man is found in animals dead of "Klauenseuche." The bacteria (photographed in the original) are 0.5 to 0.7 mm. in length. The centre is not so clearly coloured as the ends. By this they can be recognized from other micro-organisms. *Michael.*

Brown, Price (Toronto).—*Epithelioma of Tongue.* "Ontario Med. Journ.," Dec., 1892.

THE patient had been operated on for removal of a growth previous to coming under the notice of Dr. Price Brown. The growth occupied the centre of the tongue, commencing a little over an inch from the tip, and extending backwards about an inch and a quarter. With the cautery knife two incisions, joining anteriorly and posteriorly and three inches long, were made extending from the base to near the tip of the tongue. The operation lasted two hours, and very little hæmorrhage occurred. Four months later a slight recurrence took place, and recourse was again had to the cautery. Six months after the second operation the patient was reported as quite convalescent. Dr. Price Brown states that had ordinary surgical methods been pursued, nearly the whole organ must have been sacrificed, whereas the tongue had been retained for all practical purposes in its entirety. *George W. Major.*

Eisenmenger.—*Lympho-sarcoma of the Pharynx and the Soft Palate.* "Wiener Klin. Woch.," 1893, No. 52.

REPORT of four cases, all ending fatally. In spite of this, the author does not agree with Kundrat that lympho-sarcoma must always have a fatal ending, and is a *noli me tangere* as to treatment. He recommends

energetic arsenical treatment, and saw lympho-sarcomatous tumours disappear in one case under this treatment. *Michael.*

Schmitt (München).—*Alveolar Sarcoma of the Soft Palate.* "Münchener Med. Woch.," 1894, No. 16.

HISTORY and figure of a case operated upon by the author. Of surgical interest. *Michael.*

Cleveland, A. H.—*Epithelioma of the Soft Palate.* "Med. News," April 28, 1894.

REPORT of a case.

R. Lake.

Bresgen (Frankfurt-a-M.). — (1) *Pharyngo-Mycosis*; (2) *Pharyngitis*; (3) *Pharyngocoele*; (4) *Noma*. Separate Portions of Bern and Schnirer's "Diagnostisches Lexicon für praktische Aerzte."

SHORT concise articles on these subjects.

Michael.

Hoag, Junius C. (Chicago).—*A successful Method of Treating Follicular Tonsillitis.* "Canada Lancet," June, 1893.

Dr. HOAG comments upon the disproportion existing between the comparatively innocent appearance of the tonsil in follicular tonsillitis and the severity of the constitutional symptoms, and claims that the latter is the result of a toxæmia produced by the absorption of the accumulated material in the lacunæ. He has noticed that the removal of the source of the poisoning results in a speedy amelioration of the patient's condition. After clearing out the openings in the tonsil he recommends the application of peroxide of hydrogen to the cavity.

George W. Major.

Reichmann (Elberfeld).—*A Sound for the Treatment of Œsophageal Stenoses.* "Deutsche Med. Woch.," 1894, No. 15.

POLEMICAL article against a critic of Schreiber on this sound in No. 7 of the "Deutsche Med. Woch." (Compare the report in this Journal.) The author adds a new case treated with good effect by his sound. *Michael.*

Lilienthal, H. — *A Method of Differential Diagnosis in Stricture of the Œsophagus.* "New York Med. Journ.," April 21, 1894.

THE author describes a case of specific stricture which was practically cured by dilatation and iodide of potassium, and describes a method of diagnosis used in this and another case. It consists in introducing some coloured water into the stomach by means of a catheter, and then, some minutes later, administering water, not coloured, by the mouth, and, if there is regurgitation, noting the absence or presence of colour. This shows whether the instrument has passed the stricture or only entered a diverticulum. *R. Lake.*

Tietze (Breslau).—*Treatment of Cicatricial Œsophageal Stricture.* "Deutsche Med. Woch.," Nos. 16 and 18.

THE author reports some cases, and concludes it is now the case (1) that gastrotomy should be performed more often than in cases of grave

contracting stricture of the œsophagus. By the operation the dangers of the disease are diminished, and the local treatment of the stricture, as well in new as in old cases, is much facilitated. Some cases can only be cured after the performance of œsophagotomy. (2) The continual dilatation of the œsophagus by drains is a better method than the usual method of application of bougies. The author has in three cases passed a tube from the gastrotomy wound to the mouth by aid of a guide introduced through the mouth. The drain remained for continual dilatation. The details of the cases should be read in the original. In one of the cases both gastrotomy and œsophagotomy had to be made for successful dilatation of the stricture.

Michaël.

NOSE AND NASO-PHARYNX.

Tyrrell, R. Shawe.—*A Predisposing Cause of Hay Fever.* "Canadian Practitioner," Aug. 1, 1892. "Transactions of the Ontario Medical Association."

THIS paper is of some value, and well worth perusal, as the conclusions arrived at are the result of careful observation. The author claims that lithæmia is a strong predisposing cause of hay fever. He was himself a sufferer, and found that salicylate of soda taken at night would invariably dissipate a threatened attack. After further experience with the drug, he found that a fifteen-grain dose taken before breakfast was the best means of administration, as it combined the actions of a diuretic, diaphoretic and purgative. The same line of treatment was followed in other sufferers with equally gratifying results.

George W. Major.

Musehold.—*Treatment of Ozæna (Rhinitis Atrophicans Fetida).* "Deutsche Med. Woch.," 1894, No. 20.

THE author recommends the application of a glycerine-borax solution by Trautmann's nasal spray.

Michael.

Bresgen (Frankfurt-a-M.)—*Contribution to the Question of Ozæna.* "Münchener Med. Woch.," 1894, Nos. 10 and 11.

As is well known, Grünwald has asserted the cause of ozæna to lie in suppuration of the nose or the accessory cavities—a view which is contradicted by Hopman and others. To clear this question the author relates some observations from his own practice.

1. A girl, twenty-five years old, with true ozæna. The author found carious processes in the ethmoid and sphenoid bone. Cure of the disease by removal of the carious parts and after-treatment.

2. In a patient forty-seven years old, suffering with ozæna, the author found carious parts in the middle nasal channel of the left side. He believes that the frontal bones, which were now examined and gave a normal result, had been diseased before and been cured by nature. He believes that the carious processes had caused the disease in this case.

3. In a patient nineteen years old the author cured the ozæna by treatment of an empyema of the sphenoidal sinus by aid of the sharp spoon and after-treatment with hexa-violet.

4. Cure of ozaena, in a patient thirty-seven years old, by operative treatment of the carious ethmoidal bone.

5. Cure of ozaena, in a patient twenty-four years old, by surgical treatment of an empyema of both sphenoidal sinuses.

6, 7, 8, 10 and 11 are cases of ozaena successfully treated by enucleation of the carious sphenoid bones.

In the ninth case the ozaena was combined with empyema of the antrum of Highmore, the sphenoid sinus, and the frontal sinus.

The author concludes that Grünwald's views are right, and that ozaena must be treated by treatment of the diseases nearly always found in the accessory sinuses and after-treatment with hexa-violet. *Michael.*

Hopman (Köln).—*Declaration.* "Münchener Med. Woch.," 1894, No. 20.

POLEMICAL article concerning Grünwald's views on ozaena. *Michael.*

Heymann, Paul (Berlin).—*Bleeding Tumours of the Nasal Septum.* "Archiv für Laryngol.," Band 1, Heft 3.

SEE the report of the meeting of the Berliner Laryngological Gesellschaft. *Michael.*

Vladar.—*The Treatment of Rhinitis Fibrinosa by Iodoform.* "Pester Med. Chir. Presse," 1894, No. 16.

RECOMMENDATION of iodoform insufflations in rhinitis fibrinosa.

Michael.

Pawlowsky (Kiew).—*Treatment of Rhinoscleroma by Rhinosclerin.* "Deutsche Med. Woch.," 1894, Nos. 13 and 14.

IN the last two years the author has treated two cases of rhinoscleroma by chemical extract of cultures of rhinoscleroma bacilli. Before beginning his experiments on men he treated bacilli by his extracts, and found that the formation of cultures was much diminished by adding the extract to the culture fluid. Experiments on rabbits also showed him that the extract has no injurious effect. The injection of glycerine extract, performed in a patient eighteen years old with rhinoscleroma, was followed by feverish reaction, reddening and swelling of the affected nose. A month later, after fifteen injections, the plaques were softened, and examination showed signs of acute inflammation. After one year of continuous treatment the disease had made no progress. Also in a second case of rhinoscleroma the disease made no progress during half year of treatment. In this case also the injections were followed by local reaction. The author believes that he has found in this injection a diagnostic and therapeutic agent for the treatment of rhinoscleroma.

Michael.

Wright, G. A.—*Remarks on some Affections of the Accessory Nasal Cavities.* "Med. Chronicle," July, 1894.

THE author remarks that any of the nasal sinuses or collections of cells may be affected by catarrh of their mucous linings, or may be converted into abscess cavities by occlusion of their natural outlets. Suppuration within the anterior ethmoidal cells is most readily diagnosed by seeing

a purulent discharge flowing from the region of the middle meatus in cases in which there is no evidence of disease of the antrum or frontal sinus. In abscess of the sphenoidal sinus the discharge passes into the pharynx and not forwards. There is said also to be pain referred to a deeper seat than is the case in affections of the anterior ethmoidal cells. To open up the anterior ethmoidal cells a steel probe or director should be passed along a line running horizontally through the middle of the middle meatus, and the cells carefully broken down. In order to gain entrance into the sphenoidal sinus the instrument should be passed straight backwards across the middle turbinate body. Where the posterior ethmoidal cells have to be opened they may be reached either by penetrating the anterior cells, or by piercing the wall of the cells upon their orbital aspect.

In empyema of the frontal sinus there is pain in the orbit and tenderness upon percussion over the sinus. There may also be swelling of the superimposed tissues, but this is by no means always the case. In addition there is usually also a purulent discharge from the nose, which runs out when the head is held erect. If the suppuration be acute it may cause necrosis. Resolution may take place or perforation on the face or into the cranium. In order to open the sinus an incision should be made horizontally under the orbital margin, and the bone over the sinus carefully removed until the mucous membrane is in view. This should then be opened and a drainage tube passed down into the interior of the nose. Empyema of the maxillary antrum may result from the presence of carious teeth, from extension of disease from the nose or surrounding bones, from the presence of foreign bodies, from injury, or the irritation of growths. The pus may be situated either within the mucous sac or between the mucous membrane and the bone.

Pain in antral abscess is often severe, but may be slight or even absent. If the cavity be distended one or other of its walls may protrude. There is also a unilateral nasal discharge, increased when the head is held forwards or upon one side. The patient is very conscious of the presence of the discharge, especially when it is foul. The author remarks that the test by transillumination may be useful, but may be illusory. Several cases of antral disease are described. *W. Milligan.*

Lincoln, R. P.—*Removal of a Naso-Pharyngeal Tumour by the Galvano-Cautery Écraseur.* "New York Med. Journ.," May 26, 1894.

THE tumour after removal proved to be a vascular fibroma, and arose from the left half of the pharyngeal vault and the left pterygoid plate. The loop was passed up the left nostril and the mass removed without hæmorrhage. *R. Lake.*

LARYNX.

Gerhardt (Berlin).—*Spasm of the Accessory Nerve combined with Affection of the Vocal Cords.* "Münchener Med. Woch.," 1894, No. 10.

A PATIENT, sixty-two years old, with empyema and bronchitis, had some years ago a traumatic affection, and since that time tremor of the head,

increasing on movement, and continual movement of the occiput. The right shoulder stands higher than the left. The laryngoscope shows the epiglottis to be turned towards the left side. The vocal bands make continual movements during respiration; the right more than the left. If the vocal cords are closed the motion ceases. If the lower part of the thyroid cartilage is touched with the finger, clonic movements of the larynx can be remarked which are not synchronous with the pulse.

This case proves the relation between the accessory nucleus and the laryngeal muscles. The motion only occurring during inspiration proves that the innervation of voice and respiration is different. The symptom can be used diagnostically in affections of the accessory nerve. *Michael.*

Hubbard, D. L.—*An Instrument for Excluding Blood from the Larynx during Throat or Mouth Operations requiring Anæsthesia.* "New York Med. Journ.," June 9, 1894.

THIS instrument consists of a hard rubber O'Dwyer intubation tube of any desired size (a set of three is all that is required), to which is attached a hard rubber tube of the same calibre screwed into the tube by means of a metallic thread. Two slight curves are given to the mouth tube, so that it may not come into the operator's way. The mouth tube acts as the applicator. The instrument is not introduced until the patient is anæsthetized. The anæsthesia may be kept up through the mouth tube when required for a long operation. *W. Milligan.*

Phelps, Charles.—*A Case of Epithelioma of the Larynx.* "New York Med. Journ.," June 23, 1894.

IN this case the patient, a distinguished member of the medical profession, during a paroxysm of coughing, three years before consulting the author, felt a rupture occur in the larynx, and remained aphonic from that moment until the day of his death. When first referred by the author to a laryngologist, the opinion pronounced was that a growth of warty appearance occupied nearly the whole extent of the left vocal cord. The growth was considered to be benign. Two months afterwards, when again seen by the author, he was found physically weak and complaining of laryngeal cough. For some time also there had been considerable difficulty in deglutition. He was now referred to Dr. C. C. Rice, who confirmed the author's suspicion that the growth was malignant. Tracheotomy was advised and was performed almost immediately afterwards. Immediate benefit resulted, but did not continue long on account of the rapid formation of granulation tissue, which protruded through the tracheotomy tube. Two months after this the larynx and trachea were opened externally in the median line, and the tumour, which nearly filled the larynx, was cut away with scissors, its site curetted and carefully cauterized with chromic acid. The operation was performed under cocaine anæsthesia, and but for the occurrence of somewhat troublesome hæmorrhage presented no special difficulties. Towards the end of the second week his strength failed, and he died somewhat suddenly on the seventeenth day after operation. Sections of the tumour showed a stroma of fibrous tissue covered with stratified epithelium, and containing

nests of epithelial cells, many of which included "pearl bodies." It was considered that the process of degeneration had not extended over more than from three to four months. The author remarks, "There seems little doubt that an injury of the vocal cord sustained during a paroxysm of coughing occasioned the benignant growth which later suffered degeneration." The author also remarks that the moral to be derived is that "safety only lies in the earliest possible removal of all tumours, whether benign or malignant." [This case will be read with interest in the light of a recent controversy anent the degeneration of benign into malignant neoplasms.—W. M.] *W. Milligan.*

Stolper.—*Dyspnœa in Chronic Pneumonia and Purulent Bronchitis.* Schlesische Gesellschaft für vaterländische Cultur in Breslau. Meeting, Dec. 8, 1893.

EXHIBITION of specimens from a patient, forty-three years old, who died with marked dyspnœa in chronic pneumonia and purulent bronchitis. There were chronic syphilitic manifestations in the nose, liver and testicles. In the stomach were found five true gummous ulcers situated near the cardiac orifice in the greater curvature. In the *trachea a very severe stenosis*, situated so deeply that it was not possible to see it during life. *Michael.*

EARS.

McFarlane, Murray (Toronto). — *The Phonograph for Deafness.* "Canada Lancet," May, 1892.

SPECIALLY prepared wax cylinders are used in which depressions have been made at intervals by means of a stylus, the result of each depression being a sound shock of varying intensity according to the depth of the mark made and the number of revolutions made by the cylinder. Thus the sound is intrinsic and not derived from outside sources. It acts by focussing the rhythmic sound-shocks upon the membrana tympani; acting as a massage to the aural conducting apparatus, breaking down recent adhesions. The author quotes several instances in which the use of the phonograph afforded considerable relief. The investigation is, however, still in the experimental stage. *George W. Major.*

Abbot, G. E. — *Ear Cotton (Salmon coloured).* "Med. Rec.," June 23, 1894.

THE author has had made for him by Messrs. Dennison & Co., New York, some salmon-coloured absorbent cotton, which he says is so nearly the colour of the auricle that it is difficult to perceive it in the ear. In cases in which cotton-wool has to be worn so as to protect an exposed mucous membrane, and as a means of absorbing putrid discharges, the author recommends this particular cotton, which he says "comforts the patient who knows that she is not attracting repulsive pity from the public." *W. Milligan.*

Jackson, Hughlings (London).—*Cerebral Paroxysms (Epileptic Seizures), with an Auditory Warning. In slight Seizures the special Imperfections called "Word-Deafness" (Wernicke) and "Word-Blindness" (Kussmaul); Inability to Speak and Spectral Words (Auditory and Visual). "Lancet" ("Neurological Fragments"), Aug. 4, 1894, page 252.*

A CASE of epilepsy with auditory aura. In the slighter attacks, although able to hear and see, he lost understanding of words, whether spoken or written, was unable to utter words intelligible to himself, and frequently had before his mind a kind of "spectral" conversation, from which he could towards the end of the attack clearly pick out and recall some gibberish "words," such as "cluanly," "luantez," "owlu," etc. For the present Dr. Jackson refrains from an attempt to analyze the symptomatology of this complicated case. [The abstractor has observed the occurrence of such "spectral" meaningless words during nitrous oxide anæsthesia.]

Dundas Grant.

Burnett, C. H.—*Three Cases of Chronic Tinnitus Aurium and Tympanic Vertigo relieved by Removal of the Incus. "Med. News," April 28, 1894.*

THE first case was one of sclerotic catarrh, and both incudes were removed; the vertigo was completely cured and the tinnitus much lessened, and the hearing was markedly improved in one ear. The remaining cases were of the so-called "traumatic otitis." In the first of these unsteadiness of gait was present in addition. This was cured by removal of the incus from the injured side, and the other symptoms were much improved. The second presented the same symptoms as the first, and was entirely cured. The author has removed the membrane and malleus in seven cases for vertigo with one failure (a case of traumatic otitis media), and in eleven cases the incus has been removed. Of these, once the stapes, and once its crura were removed likewise. Ten were cured, and one, a neurotic subject, was unrelieved.

R. Lake.

Hammond, L. J.—*Three Cases of Attic Suppuration in which Operation was followed by Facial Paralysis (Bell's Palsy). "Med. News," May 26, 1894.*

THE author records the three cases in the hope of learning from others how far it is possible to avoid this complication, which, he remarks, owing to the anatomy of the parts, is unquestionably a condition likely to occur. In the three cases the patients had had careful local treatment applied for considerable periods before operation was resorted to.

In the first case the patient, a male, aged thirty-two, had had left-sided suppuration from the left middle ear for upwards of twenty years. The upper part of the left membrane was destroyed, and the probe passed readily into the "atticus." The remains of the membrane, the malleus (of which only a portion of the body remained) and the incus were removed. The cavity of the middle ear was then carefully curetted, and a portion of the upper posterior roof of the canal chiselled away. Thirty-six hours after the operation a marked paralysis was noted upon the left side of the face, involving the eyelids and the brow. The paralysis subsided in six weeks, and suppuration had entirely ceased in eight weeks.

In the second case the patient, a female, aged twenty, had had right-sided suppurative middle-ear disease for fourteen years. The "attic"

was found full of granulation tissue, and the head of the malleus carious. The membrane, malleus and incus were removed. The entire cavity was carefully curetted. Facial paralysis appeared upon the third day after the operation, and continued for about seven weeks. The discharge ceased entirely by the end of the tenth week.

In the third case the patient, a female, aged thirty-four, had had suppuration from the left ear for thirteen years. The probe passed easily up into the attic, and cleansing brought down large quantities of necrotic tissue, black and very fœtid. She complained of severe vertigo and tinnitus. The malleus was removed, as also the remaining portions of the membrane. The incus could not be found. In addition, a portion of the posterior part of the roof of the canal was chiselled away. Paralysis was noticed in this case before the patient had recovered from the anæsthetic. In this case treatment has somewhat improved the paralytic condition, but up to the time of reporting had by no means cured it.

W. Milligan.

Buck, A. H.—*A Case of Acute Inflammation of the Middle Ear, terminating in Purulent Periphrlebitis of the Lateral Sinus—Operation—Recovery.* "Med. Rec.," June 30, 1894.

THE patient, a strong and healthy man, aged fifty-four, consulted the author for the relief of pain in the left ear. For several days previously he had been suffering from a cold in the head, brought on by exposure. The membrana tympani was found, especially in its upper half, markedly congested. There was also accompanying naso-pharyngeal catarrh. The following day the pain was found to have been hardly relieved at all by any of the remedies prescribed. As the middle ear was seen to be full of secretion, a long crescentic incision was made in the posterior half of the membrane, affording a free outlet to the pent-up blood-stained serum. The paracentesis afforded a certain amount of relief, but on account of the rapid healing, and the consequent return of pain, it had to be repeated several times.

A few days after this, tenderness was complained of behind the ear, and leeches were ordered. As only slight relief followed, a Wilde's incision was made, followed by the introduction of a seton. After the seton had been in place for four or five days the patient had a sharp chill, which the author considered due to retention of pus in the seton-channel. The patient's condition not having improved at all, it was decided after consultation to open the mastoid antrum, and so to establish free drainage. This was accordingly done, but only a very small quantity of pus was found in the antrum. For some time relief followed, but pain returned upon the slightest retention of pus in or around the antral tube. Increased redness and swelling of the integuments covering the lower part of the mastoid process led the author to suspect the presence of pus in the apical cells of the mastoid process. The bone covering the outer and posterior parts of the mastoid process was accordingly chiselled away, but no pus or appreciable softening of the bone was found until the immediate wall of the channel for the lateral sinus was reached. At this point fully half an inch from the outer

surface of the mastoid process, the bone appeared to have undergone a certain degree of softening, and odourless creamy pus welled up as soon as the chisel cut through the surrounding softened wall of bone. The outer wall of the vein was found to be granulating but not softened. The patient was now taken charge of by Dr. Lange, who proceeded to expose the downward track of pus along the jugular vein. The jugular vein, from its situation in the sigmoid groove, down to a point one inch below the tip of the mastoid process, was exposed, and was found to be thrombosed. Enough of the squamous portion of the temporal bone was also removed so as to afford free access to the outer part of the vertical portion of the lateral sinus. After having very freely exposed the lateral sinus, the coats of which were found much inflamed, a drainage tube was laid in the wound and dressings applied. The patient made a good recovery.

The author remarks that "*the persistence of deep-seated pain behind the mastoid process, continuing after the antrum has been opened into and thoroughly drained, is sufficient warrant for making an opening into the sigmoid groove for the lateral sinus; and it is not advisable to wait until the patient has chills, or until the body temperature rises to an appreciable degree before resorting to operative interference in this direction.*"

W. Milligan.

NOTE.

INVITATION ISSUED by Dr. SENDZIAK with a view to
COLLECTIVE INVESTIGATION concerning the RADICAL
TREATMENT of MALIGNANT TUMOURS
of the LARYNX.

Dear Sir,—On 31st December, 1893, twenty years elapsed since Billroth for the first time performed the total extirpation of the larynx on account of cancer.

During this time about two hundred total and nearly one hundred partial extirpations of the larynx, likewise a fair number of laryngo-fissures and endo-laryngeal operations, on account of malignant tumours (carcinoma-sarcoma), were performed.

It might seem that these numbers must give a sufficient proof of the efficacy of one or the other operative method.

It is not so, however. Yet till now there are different opinions as to this question. Some regard extirpation of the larynx as the only one rational therapeutic treatment of this disorder; the others, however, absolutely deny its right of citizenship.

At any rate, the cause of this difference of opinion consists in a want of exact statistics—at least, up to late (since the last statistic about four years elapsed).

It would be then of great interest to know how often at present these operations (laryngectomy, laryngo-fissure, etc.) have been performed, and what results they give.

It is, however, not easy to write exact statistics. I have arrived at the conviction that the best way to attain this aim is a proclamation to all laryngologists and surgeons, with the request to kindly communicate to me the cases operated on by them during the last twenty years, *i.e.*, till 1st July, 1894, as well as their opinion of the whole question.

In order to facilitate this, I give here the following scheme :—

1. Name and residence of the operator (or at least, laryngologist).
2. Age and sex of the patient.
3. General state of the patient (lymphatic glands affected or not).
4. Laryngoscopic picture (the right or left half, etc.).
5. Diagnosis (clinical, that is to say, microscopical, carcinoma-sarcoma, etc.).
6. Date of the operation (day, month, year).
7. Kind of operation (endo-laryngeal, thyrotomy, total and partial laryngectomy).
8. Result of the operation (death—its cause? Recurrence—when? Recovery—state of the latest examination, that is, of the latest information).
9. Source (published, and where? or not published cases).
10. Annotations (general opinions, etc.).

This information in French, German, or English language, I beg you kindly to send as soon as possible, to the address of the undersigned.

Hoping that this reclamation, having for its object such an important question, will find a favourable reception, I have only to express, in anticipation, my sincerest thanks to all laryngologists and surgeons for their kind support of my efforts.

At the same time this reclamation will be published in "*Centralblatt für Chirurgie*," as well as in other special journals.

Dr. JOHN SENDZIAK.

Warsaw, Poland, Russia,
139, Marszatkowska Street.

10th June, 1894.

[We warmly recommend the project in the above letter to the active support of our colleagues. As Dr. Sendziak justly says, there are still different opinions as to the justifiability, or, at least, indications and methods of radical operation in cases of cancer of the larynx, and there has been no attempt for a comparatively long time to review and critically to appreciate the collected observations, although the above questions, in view of the relative rarity of these operations and the predisposition of every surgeon to certain methods, are very suitable for such a collective inquiry. Also the frequently expressed and really justified desire to report on the one hand the unsuccessful cases, on the other the further fate of the patients who are notified as having recovered, is realized only in a very limited manner.

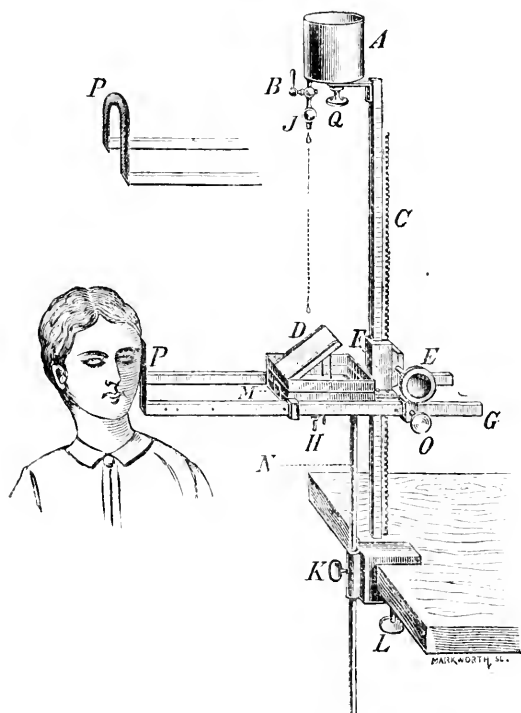
On account of all these reasons, we gladly welcome the project of our colleague Dr. Sendziak, and we hope that the support of those fellow-workers who have suitable experiences will aid him in its realization on the basis of the rich material possessed, in order that his work may be of great practical value.

As to the special eligibility of Dr. Sendziak to undertake such a task, we need only remind our readers that he last year received at the International Concours of the Medical Society in Toulouse the gold medal and one thousand francs for the best work upon the diagnosis and treatment of malignant tumours of the larynx.—ED.]

A NEW ACOUNMETER.

By Dr. LEVY (Hagenau).

THE accompanying illustration represents Dr. Levy's water-drop acoumeter, shown by him before the Section of Otology at the recent International Medical Congress. This was described in our last issue, page 536.



A, outflow reservoir; B, outflow stopcock; C, upright rack, with graduation marks; D, resonance plate for which the drops fall; E, nulled head and pinion; F, collar; G, slide for the ear window; H, stopcock to let the water out; J, a hollow bulb under the outflow stopcock B (preventing the formation of a solid column of water above the drop-orifice); K, screw for raising and lowering the apparatus; L, screw for fixing the apparatus to a table; M, vessel for the reception of the drops (filled with paper so as to deaden the sound); N, upright to carry the vessel; O, screw to fix the slide G; P, ear window with a padded frame; Q, screw to fix the reservoir A.

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CONGRESS MEETINGS.

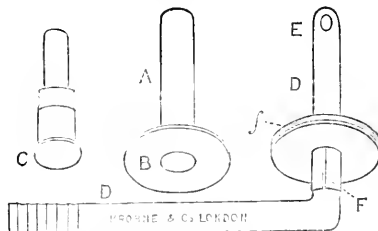
BRITISH MEDICAL ASSOCIATION.

Annual Meeting, Bristol, August, 1894.

SECTION OF LARYNGOLOGY AND OTOTOLOGY.

A New Antral (Maxillary) Drainage Tube. By W. MILLIGAN, M.D. (Manchester).

In chronic empyema of the maxillary antrum, free drainage is an essential to successful treatment. In those cases where the opening into the antrum has been made through the alveolar border, some form of drainage tube is usually inserted, in order to drain away the purulent secretion and to maintain a patent opening. The opening into the



cavity should be made of good size, and of the diameter of a previously selected drainage tube. The accompanying illustration shows a form of drainage tube and irrigating cannula which will be found useful. The

antral tube A is passed into the alveolar opening, the flange B being subsequently attached to a dental plate. C is a screw-plug, which is made to project sufficiently far down to enable the patient to readily grasp it between the thumb and forefinger when required to be removed, but not so far as to cause the teeth of the lower jaw to touch it when the jaws are closed. The tube is made of silver, and is gold-plated.

D is a silver rectangular canula, of such a size as to accurately fit the tube A. Its upper extremity, E, is perforated by three foramina. F is a movable platform, carrying a thick rubber washer, *f*. The distal extremity of the canula is in communication with a glass (containing the fluid for irrigation) by means of a long rubber tube. When in use the screw-plug C is removed; the fluid from the reservoir is sucked through the canula until a syphon action has been established. Temporary pressure is then made upon the rubber tube just at its attachment to the canula. The canula is now run up inside the antral tube, and the platform B raised so as to abut accurately against its flange. The patient's mouth being now closed upon the canula, the head is bent forward, and the pressure upon the rubber tube taken off. The syphon action is thus at once re-established, the irrigating fluid flowing from the reservoir into the antrum, and out through the corresponding nasal passage. In this way thorough cleansing of the cavity may be secured, and can be conducted with ease by the patient.

The tube and canula are made by Messrs. Krohne & Co., several sizes being kept in stock.

On a Better Appreciation of Rinne's Test. The Aero-Osseal Difference. By DUNDAS GRANT, M.D., F.R.C.S.

This valuable test was laid before the medical world in 1855 by Rinne, of Prague, as embodied in the description of his observation that in normal-hearing persons a vibrating tuning-fork, placed on the skull and allowed to die out, was again audible if held opposite the external meatus. This—the “positive” result of Rinne's test—was the concrete application of the great principle, that a normal tympanic apparatus is a better conductor of sound than the bones of the head. Air-conduction, in other words, is in the normal subject better than bone-conduction.

$$A C > B C$$

The question, then, has to be considered as to how much in the normal ear air-conduction is better than bone-conduction, or what is the “*aero-osseal difference*” (A O D)?

Not to enter for the moment into the question of the mode of conduction of sound through the cranial bones, nor into that of the difference in the mode of communication of vibrations from the blades and from the stem of the tuning-fork, I shall only say that this is a quantity which must be made out by direct experiment on typical normal persons for any particular tuning-fork intended to be used for clinical purposes. A fork which is heard for about twenty-five seconds longer through the meatus than through the bones is a convenient one, and for such a fork the Normal Aero-Osseal Difference would be 25.

$$N A O D = 25.$$

If we find that the tuning-fork after ceasing to be heard on the bone is still audible at the meatus, but for less than the normal (assumed) twenty-five seconds—say only fifteen—this loss of ten seconds of aero-osseal difference would indicate either a diminution in the conducting capacity of the tympanic apparatus, or an increase in that of the cranial bones. I do not think any physical change in the bones can increase their intrinsic conducting power, but this faculty is certainly augmented in the presence of increased tension of the tympanic apparatus, a condition which simultaneously decreases the conducting power of the tympanic apparatus for aerial vibrations. In such a state of matters our A O D would be less than 25—A O D diminished—Rinne positive but shortened.

$$A O D = N A O D - n = 25 - n$$

If n is less than 25—say 10—the Rinne test will still give the so-called “positive” result, but shortened, *e.g.* :—

$$A O D = N A O D - 10 = 25 - 10 = 15$$

and according to the generally received interpretation of the test would imply a normal state of the conducting apparatus. It must be evident that this is theoretically untrue, although practically of very wide applicability. Although we may accept it as a safe rule that in the presence of a “positive” Rinne there is no considerable degree of disease of the conducting apparatus, there may, however, be a slight one.

In the next place, if n is equal to or greater than 25, then the aero-osseal difference becomes zero or a “negative” quantity, *e.g.* :—

$$\begin{aligned} A O D &= N A O D - N A O D = 0 \\ &= 25 - 25 = 0 \end{aligned}$$

and

$$\begin{aligned} A O D &= N A O D - (N A O D + n) = -n \\ &= 25 - (25 + 15) \\ &= 25 - 40 = 15 \end{aligned}$$

This would indicate a loss of twenty-five seconds, or more, of the normal preponderance of air-conduction.

It is obvious that we have such a result in those cases in which, owing to disease, the tuning-fork, after ceasing to be heard on the bone, is not further heard opposite the meatus. This is the “negative” result in Rinne’s test.

As a general rule the following may safely be accepted. When the aero-osseal difference is zero or a negative quantity—Rinne’s test is “negative”—there is some definite abnormality of the conducting apparatus.

Given $A O D = N A O D$ (Rinne “positive”), the conducting apparatus is normal.

Given $A O D = N A O D - n = +d$ (Rinne “positive” but shortened), the conducting apparatus is slightly affected.

Given $A O D = N A O D - N A O D = 0$
or
 $= N A O D - (N A O D + n) = -n$ } (Rinne “negative”), the conducting apparatus is considerably affected.

All this, I hold, is independent of the condition of the perceiving apparatus, the termination of the auditory nerve in the labyrinth, its

intra-cranial course, and its central continuation terminating in the auditory cortical centre. I beg the most careful attention to this point, because from questions I have at times had put to me, the value of Rinne's test of the A O D has not been properly appreciated, owing to a failure to grasp this principle, namely, that Rinne's test in itself does not directly afford any positive information as to the condition of the auditory nerve distribution, the sound-perceiving apparatus. Its indirect evidence is, however, of the utmost value, and more especially if the A O D is normal, because then we are able to exclude disease of the conducting apparatus, and whatever deafness is present must be ascribed to an affection of the perceiving organs. We may go further, and allow that if Rinne is positive, and the A O D, though not normal, is still a positive number, the amount of disease of the conducting apparatus compatible with this is only slight, and any deafness over and above what this would account for must be put down to the account of the perceiving apparatus. What amount of deafness may be attributed to the degree of disease of conducting apparatus compatible with Rinne's result being positive, *i.e.*, with A O D being a positive number, has been investigated by Lucae. He has arrived at the conclusion that if the patient cannot hear whispered speech at a greater distance than one mètre the degree of defect of hearing is greater than would be accounted for by such slight abnormality of the conducting apparatus as would be compatible with a positive result of Rinne's test. In other words, with Rinne "positive"—

If A O D = N A O D \pm 25, all deafness present is attributable to the perceiving apparatus.

If A O D = N A O D \pm $n + d$, any deafness over and above that necessary to reduce hearing power for whispered speech to less than one mètre is attributable to the perceiving apparatus.

If Rinne is "negative," *i.e.*, if the A O D is zero or a negative number, it may be assumed with every assurance that there is decided disease of the conducting apparatus, but this does not inform us that there may not be disease of the perceiving apparatus as well. In point of fact, a combination of disease of conducting apparatus with that of the perceiving apparatus is not at all uncommon, especially as exemplified in the later stages of dry catarrh of the middle ear, when the labyrinth becomes involved, and also in tuberculous disease of the middle ear extending to the labyrinth.

In uncomplicated middle-ear catarrh (I allude now particularly to those cases in which the objective signs give us little assistance) there is an increase of bone-conduction as compared with a normal ear. In uncomplicated nerve-deafness there is a decrease of bone-conduction as compared with a normal ear. If, then, with negative Rinne we have an absolute diminution of bone-conduction, we may unquestionably diagnose the coexistence of nerve-deafness, and this, *à fortiori*, because the middle-ear disease alone would cause an increase of bone-conduction. The case is fairly clear if we have with negative Rinne merely a normal amount of bone-conduction. This would indicate in a young or middle-aged patient either a form of disease of the conducting

apparatus, which, while rendering the A O D negative, did not absolutely increase bone conduction ; e.g., simple obstruction of the external meatus, or an amount of nerve-deafness sufficient to neutralize the tendency of middle-ear trouble to cause increase of bone-conduction, of course not interfering with the aero-osseal difference. In an old person the change in the auditory nerve due to senility would account for the absence of increase of bone-conduction.

If with a negative Rinne there is increase of bone conduction, are we in a position to say that there is absence of nerve-deafness ? Theoretically we may not, but practically, with an absolute well-marked increase of bone-conduction we may safely exclude any significant amount of nerve disease, taking merely the tuning-fork indications as our guide. I leave out of account for our present purpose the resort to tests by means of Galton's whistle, comparison between hearing for conversation and for the watch tick, the presence or otherwise of paracusis Willisii, the history of the case, and the surrounding circumstances.

From the observation of a considerable number of cases I arrived at the conclusion that the increase of bone-conduction was in uncomplicated dry middle-ear catarrhs fairly equal to the diminution of air-conduction. Thus, with a diminution of air-conduction for the tuning-fork to $-10''$, there should be an increase of the bone-conduction to $+10''$ if there is uncomplicated middle-ear catarrh or tension. I have found sufficient exceptions to prevent me from urging the acceptance of this relation as an absolute standard, but as a rough general rule it will be found of considerable value. Given then—

A O D = $-d$, with B C diminished, there is along with disease of the conducting apparatus an affection of the nerve.

„ „ with B C normal, there is disease of the external ear, or a combination of middle-ear and nerve-deafness (unless in an old person).

„ „ with B C increased in proportion to the diminution of air-conduction (and in most cases whether or not), there is middle-ear disease pure and simple.

I shall now advert to several conditions in which, without due care, fallacies may arise.

In cases of unilateral nerve-deafness it is not uncommon to get an apparently negative Rinne in the following way. The fork is placed on the mastoid of the deaf side, and is heard by the patient. When the sound is no longer audible, it is then held opposite the meatus, and is no longer heard. This is negative Rinne. If, however, we inquire carefully, we shall find that the fork vibrating on the mastoid of the affected side is heard *in the opposite ear*, and we thus escape the erroneous diagnosis of middle-ear disease. Naturally, we do not overlook the nerve-deafness, because the absolute diminution of bone-conduction is usually unmistakable, and a tuning-fork on the vertex is heard best in the good ear. A further check on the patient's statements is afforded by applying the fork on the parietal eminence. To those who have read Burnett's well-known work it will be familiar that under normal circumstances a

fork vibrating on the parietal eminence is heard in the opposite ear. In unilateral nerve-deafness it is heard in the sound ear, whichever parietal eminence it is placed on.

In old persons—those at least who are over sixty—it is usual to find that bone-conduction has diminished to a greater extent than air-conduction, and that even with a comparatively considerable amount of disease of the middle ear there is not sufficient bone-conduction to indicate increase, as compared with the normal ear, nor enough even to render Rinne's test "negative." In such patients we must carefully beware of undue readiness to exclude middle-ear catarrh from our diagnosis because we happen to find that conduction by the air is still greater than that through the bones.

It must be remembered that it is for low tones particularly that defects in the conducting apparatus disturb the hearing, and that air-conduction for low-pitched forks is diminished by a lesser degree of middle-ear disease than is necessary to diminish the hearing for high-pitched ones. Similarly the A O D becomes negative for low-pitched forks before it does for the others. We have thus a valuable application of Rinne's test, as practised by means of a series of five tuning-forks ranging at intervals of an octave from C with 256 to C¹¹ with 4096 double-vibrations per second. The A O D is tested with all in succession, and a note is made as to whether all or any give positive or negative results. This is best carried out after inflation of the tympanum to a suitable degree by means of Politzer's method, the catheter, or some equivalent process. The prognosis is favourable in proportion to the number of the forks which give a positive A O D, and *vice versa* (Dench).

In performing the comparative test we have been primarily concerned with simple Rinne. We must avoid using a high-pitched fork alone, as the existence of a positive A O D for such a one is quite compatible with considerable disease of the conducting apparatus. On the other hand, a very low-pitched fork is often so bulky and of such moment that its vibrations are apt to be felt, even when no longer heard. Though excellent and indispensable for physiological inquiry, they are less adapted for clinical work than the model devised by the late Mr. Gardiner Brown, vibrating five hundred and twelve times in the second, light in construction, convenient to manipulate, and, while vibrating just sufficiently long to permit of differential observation, not unnecessarily wearisome so as to deter one from the routine use of the various tuning-fork tests, each of which calls for confirmation by means of the other. In recommending such a fork for the purpose of sparing fatigue and saving time, I can further commend it as, at the same time, exhausting the auditory nerve of the observer and the observed less than the larger ones.

The effect of exhaustibility of the auditory nerve has to be kept in mind as influencing our investigations. An ear exposed to a sound becomes after a time fatigued and unable to hear it so well, although it recovers itself after removal of the source of sound for even an instant. Thus if a vibrating tuning-fork is placed on our own normal mastoid the sound ceases to be heard after a time, but is again heard if it is removed for an instant and then replaced. It is obvious, then, that if, after the first

cessation of the sound, we transfer the fork to the mastoid of another person, that person will, if normal, hear the fork, and apparently possess increased bone-conduction. The reverse is also true, and it is therefore evident that there is an undue advantage in favour of the person who is tested in the second place, whether observer or patient. Hence, if in applying the test the fork is placed on our own mastoid, rehearing on the part of the patient would apparently indicate increased bone-conduction. This result has to be checked, unless the difference is very considerable, by a reversal of the process, taking the mean between the two results. A further safeguard consists in removing and replacing the fork on our own ear till no recurrent hearing takes place, and only then applying it to the patient. The attention of the profession was drawn most forcibly to this recurrent hearing by Dr. Corradi, of Padua, and the importance of the effect of auditory nerve exhaustion, as affecting these tuning-fork tests, has only been brought prominently before me by the observations of Dr. St. George Reid, of Croydon, whose valuable clinical assistance I have had the advantage of enjoying for some months. To minimize the degree of exhaustion and consequent source of fallacy, it is advisable to allow the fork to "die out" to the minimum audible volume before applying it to the bones or meatus of either patient or observer. This last point is stated by Bezold, whose classical study of Rinne's test is a well of information on the subject, and is indeed the chief source of inspiration of the writer's reflections in connection with it.

So far the question of exhaustion occurs in reference to comparisons between the hearing of one person and that of another. It will be seen that the same applies to comparison between bone- and air-conduction in the same individual. Here, again, the mode first tested is at a disadvantage, and, in employing Rinne's test as usually done, *i.e.*, by placing the fork first on the mastoid, we place the bone-conduction at a disadvantage. Hence, when the test turns out "positive," a little allowance must be made for loss of bone-conduction through exhaustion, and the result must be checked by reversing the process. When, on the other hand, the result is a "negative," then *à fortiori* preponderance of bone- over air-conduction may be diagnosed without further confirmation, remembering the cautions to be observed in cases of unilateral nerve deafness.

It remains now to explain, in the light of the foregoing, one or two difficulties which I have known to occur to practitioners who were not by any means novices in otology, such as why Rinne's and Weber's tests should give in some cases opposite results, why a "positive Rinne" does not always exclude middle-ear disease, and how far it helps us in diagnosing nerve-deafness, and, lastly, how far "negative Rinne" enables us to diagnose disease of the conducting apparatus.

Weber's test, as we have seen, will indicate the seat of lesion in a case of extreme unilateral nerve-deafness, when Rinne's test would apparently indicate, by "negative" result, a preponderance of bone- over air-conduction on the affected side, the vibrations by bone-conduction being actually appreciated in the opposite ear. In regard to Weber's test we must bear in mind Gradenigo's singular observations with his

osteo-tympanic acoumeter—that opposite results are obtained if very loud instead of very feeble sounds are used in testing; only the minimum of audible sound should be employed. This observation was neatly confirmed by Kirchner's case of exfoliation of the cochlea, related before the Congress at Rome. When the tuning-fork was vigorously struck, it was heard loudest in the cochlea-less ear, and when very gently struck it was heard only in the sound ear. A tuning-fork vibrating with the greatest feebleness compatible with audibility should be employed.

A "positive" result of Rinne's test does not absolutely exclude disease of conducting apparatus, because we have seen that although Rinne may be positive, it may be shortened—that is to say, that the aero-osseal difference may be less than the normal, and yet be a positive number. The disease in such cases can only be slight. Again "positive" Rinne enables us to diagnose nerve deafness only in so far as we can by means of it exclude disease of the conducting apparatus as accountable for any of the deafness.

"Negative" Rinne enables us to diagnose obstructive deafness, whether or not there be superadded thereto an affection of the perceiving apparatus.

In practice the test is constantly of the utmost value, and I have endeavoured to show what I believe to be its true position, differing alike from those who under-estimate its importance, and from those who would employ it to the exclusion of all other tuning-fork tests.

Deaf-Mutism as a Clinical Study. By JAMES KERR LOVE, M.D.

Most ancient and many modern authorities fail to appreciate the case of the deaf-mute, and even now it is not easy to grasp exactly the essence of deaf-mutism. The absence or loss of hearing so stunts the development of human faculties, so completely detaches its victim from what is common to men, that the claim of the deaf-mute to be human at all has been questioned. He has been said to be on a par with the idiot, to have his place below some of the animals. He has been called ungrateful, cunning, and treacherous. All sorts of peculiarities have been ascribed to him, and a serious attempt has been made to show that he is generally left-handed. His absence of speech has been supposed to depend on defective vocal arrangements—a stunted larynx, a tied tongue, badly developed lungs. People who talk like this have never tried to teach the deaf, they have never watched them play, they cannot have thought correctly on the cause of the muteness. It is not necessary here to say much on these absurd views about deaf-mutes. But it is desirable to point out that the average deaf-mute is a case of very defective hearing, and nothing more. That is the essence of the case. That is the one fact which must not be lost sight of, either by the clinical observer or the teacher of the deaf. We are studying deafness and its results, the teachers are educating the deaf. All that has happened is this—"The small music room built of ivory, no bigger than a cherry-stone, which we call the ear, and in which the performance of the largest orchestras are accurately reproduced, is absent or has got damaged, and the soul waits in vain for any echo from the outer world. But the soul is there all the same, and if your deaf-mute is not as human as his hearing

"brother it is because you have failed to reach it, and your educational methods need remodelling."

Stripped of the poetry with which Dr. George Wilson has invested his sketch of the anatomy of the internal ear, and put into plain English, the deaf-mute is usually a case of disease involving the internal ear and nothing more. There are stupid children in every deaf-mute school, just as there are duffers in every board school. Here and there one comes across an idiot, but the schools for the deaf have no monopoly of idiocy, for the officials of our institutions have sometimes to dismiss idiots with perfect hearing. Sometimes the disease which has caused the deafness has also damaged the eyesight or the brain itself, but eight out of every ten deaf-mute children are just like their neighbours in the board schools, minus the sense of hearing.

The recognition of deafness is only difficult in the very young. In nearly all children positive evidence of the presence of hearing is given during the first weeks of life. The child is awakened by a noise, and the chief difficulties most mothers have is to arrange for the quiet consistent with the unbroken sleep of their babies. A mother's assertion that her child did hear at birth is therefore usually reliable. The diagnosis in older children is easy. Sharp, loud sounds are produced behind the back of the child, and the face watched, and if aerial hearing be present some change in expression will be noticed. The amount of this hearing when present can be measured, but as a paper on this subject is promised by Mr. Harsant, I refrain from further discussion of it.

The clinical aspects of deaf-mutism may be studied either in young children who are losing their hearing or in the finished article as it exists in the deaf and dumb institutions. Neither of these classes have received the attention from the doctors which they deserve. Deaf-mutes have always been regarded as outside medical practice. Our profession has never shaken off these popular fallacies about deaf-mutes: first, that they have all been born so; second, that they are all quite deaf; and third, founded to some extent on these two, that they are helpless, defective characters not capable of taking any useful place in society. I have discussed and reported the first two of these fallacies,¹ and will content myself with a restatement of the facts that most deaf-mutes are born hearing, and that few mutes are totally deaf. The third fallacy is being daily reported by the devoted body of teachers of the deaf in America, on the Continent of Europe, and in our own country.

Congenital deafness so often "runs in the blood," and is so marked by heredity that its social aspect claims most attention. It has a clinical aspect. But practically the prevention of congenital deafness resolves itself into the discouragement or prohibition of inter-marriage between the congenitally deaf.

In the larger class of cases, those of acquired deafness, the practitioner has a better field. A large proportion of these cases of acquired deafness have never had an aural speculum used before they enter the institutions for the deaf and dumb. I make this statement on the authority of the

¹ "Archives of Otology," Vol. xxii.

parents of the children, and of the medical men these parents employ. This means that medical men generally cannot use an aural speculum or are careless about the diseases which cause acquired deafness.

I find that cerebral inflammations, convulsions, and fits cause a third of the cases of acquired deafness. Now if all cases of this type ending in deafness were carefully observed and reported by those in charge of them, what a flood of light would be let in on the hazily defined group of ailments embraced by these terms. Not only the deafness, which is the most distressing result of the illness, but the essence of the disease might become clear. It is useless to talk of the treatment of deafness thus resulting: what we want first is more accurate diagnosis of the diseases causing the deafness.

Measles, scarlet fever, and other infectious diseases account for about another third of the cases of acquired deafness. Here the duty of the practitioner is very clearly defined. The application of the principles of surgical cleanliness to the suppurative otitis accompanying these diseases would prevent many cases of deaf-mutism. We have not yet reached the time when a suppurating sore in the tympanic cavity is intelligently treated by the general practitioner. There is supposed to be something special about this sore, which takes it out of the range of ordinary surgical principles.

Primary ear affections account for a smaller number of cases of deafness than one would suppose—hardly a tenth. The remarks I have made in connection with the otitis of the exanthemata apply here with equal force.

The only other cause I think worthy of separate mention is hereditary syphilis. Parents never put this down as a cause of deafness in their children, and doctors hardly ever insert this in the admission schedules. Nevertheless I have discovered evidence of syphilis in several children in the Glasgow Institution where no other cause of deafness was stated or ascertainable, and the fact is worth emphasizing.

Coming now to the finished article—the deaf-mute at school—we have an enormous field for observation and practice. All children entering a school for deaf-mutes should have their ears carefully examined and their hearing tested. The examination at this stage is much more important than the testing. One's means of communication with an uneducated deaf-mute are so limited that the result of the test must be accepted with great care. Within a few weeks, too, the teacher will find out any hearing which is worth developing, and then a more careful testing may take place. But the examination of the ear must be done at once and thoroughly. All sorts of foreign bodies will be found in the ears, and many cases of ceruminous collection will be discovered. Now the removal of these obstructions to aërial vibrations will not restore hearing and let the child attend an ordinary school. It will improve hearing in some cases. But these collections and foreign bodies exist in ears in which suppurative disease is easily set up, and as suppurative disease is not only a danger to the remaining hearing but a menace to life, its occurrence should be anticipated by the removal of every cause. Then a few cases of active suppurative disease will be found, and the suppurative otitis of deaf-mutes

is the most obstinate type I have ever treated. This is not to be wondered at when one remembers the antecedents of these children. But it can be controlled and generally cured. Persistent cleanliness with antiseptic insufflations—equal parts of iodoform and boracic acid powders is the best mixture—will heal most cases.

In the great majority of cases inspection will show the middle ear to be altered in both congenital and acquired deafness. But an indrawn or perforated, or even an absent membrane, does not account as a rule for the high degree of deafness which causes mutism. The tuning-fork test will show that the damage is not confined to the middle ear, but that the internal ear has suffered too. It is this, along with the fact that the deafness is usually of long standing, which makes improvement in the hearing of deaf-mute children so hopeless. Here and there one meets a case in which the history and the presence of a good remnant of hearing suggest the use of the air-douche. Indeed, were it not for the enormous work involved, one would like to try this method of treatment somewhat largely in our institutions.

The tonsils and naso-pharynx are found notably diseased in about two-thirds of deaf-mute children. Should anything be done for this condition? I do not refer to cases where throat symptoms are present. In these one would apply the same principles as in healthy children. But in the absence of painful symptoms what inducement is there to rid a deaf-mute child of enlarged tonsils or adenoid growths? That depends on the kind of education being given to the deaf child. The highest blessing you can confer on him is to give him back his means of converse with the hearing and speaking world. The best teaching methods aim at this, in as large a percentage of children as possible. It is not enough to teach a deaf child to speak with his fellow mutes. More may in many cases be impossible, but more should in every case be attempted. If, then, the deaf child is to speak well, we must rid him of all obstructions in these organs of speech—the throat and nose. This means entering a fresh field of work. In no country, so far as I am aware, has the oral system called in the help of surgery for the improvement of its results. The condition in the throat and nose of many oral pupils would make distinct speech in hearing children impossible. How frightfully then is the deaf-mute handicapped by these obstructions. Without the help of the aural surgeon the best results under the oral system are impossible.

The following suggestions arise out of the consideration of this subject:—

1. In connection with every deaf and dumb institution in the United Kingdom should be an aurist, whose duty it would be to examine the ears and test the hearing of every child admitted to the institution. Medical men need not mix in the war about teaching methods, but should supply the information without which the best method cannot be determined. Where the oral system is to be taught, surgery can do something to improve the articulation. Any treatment which promises improvement in hearing should be tried.

2. Otologists should continue to direct the attention of the profession and of the public to the more careful treatment of diseases of the ear.

and especially to those ear affections which complicate the exanthemata. Local authorities should include measles amongst those diseases to be compulsorily notified, for the disease is one of the most fruitful sources of deaf-mutism.

3. Marriages among the congenitally deaf should be discouraged, or, if necessary, prohibited.

4. The temporal bones and the brains of deaf-mutes who die from whatever cause should be carefully examined, and the reports published.

It is only by careful work on these lines that we can diminish the number of those on whom this terrible calamity of deaf-mutism has fallen, or ameliorate the lot of those who neither speak nor hear.

DISCUSSION ON DR. LOVE'S PAPER.

DR. DUNDAS GRANT : Such an endeavour as Dr. Love has made in his interesting paper cannot be too highly appreciated. In my opinion a new era is dawning in relation to deaf-mutism. We require more men with special attainments ready to take up in Dr. Love's spirit the case of the deaf-mute, and I am ready to support him in all he has said. I would, however, like to call his attention to the results obtained of late by Prof. Urbantschitsch, of Vienna, and which are creditable alike to his scientific energy and his self-sacrificing goodness of heart. He must not be allowed a monopoly, and I hope that his *modus operandi*, so freely set forth in his papers in the "Wiener Klinisch. Wochenschrift," will be followed. He finds that in all the supposed totally deaf cases (with deaf-mutism) brought before him there is a residuum of hearing power amenable to methodical cultivation. He finds them soon able to appreciate vowels; later, consonants and words and sentences. The hearing faculty gradually increases, and the power of speech in those trained in lip-reading is enormously improved. In addition to daily special individual instruction from the professor or his assistant, the patients can exercise each other, and the patient can exercise at the same time his speaking and hearing by speaking into the bell of a long flexible speaking-tube, the other end of which he places in his own ear.

This method of training must be taken up by all those who sympathize with every means of improving the condition of the deaf-mute—indeed, by every student of deafness who wishes to keep up with the times. My attention was most strongly drawn to this subject by Dr. Goldstein, of Boston, U.S.A., whose enthusiasm had been fired by personal observation of Prof. Urbantschitsch's methods and results. Dr. Goldstein's demonstration on several deaf-mutes astonished me and those teachers of deaf-mutes who were present.

DR. BENNETT : Among the methods adopted in the training of deaf children, the speaking tube can be used with benefit. There is often a certain power of hearing, which is not developed, because it is not sufficient for ordinary speech. If, however, the speaking tube be used, the slight amount of hearing which exists is developed, and not only is some benefit derived in this way, but further, the tone of the voice in those trained in the oral system is improved.

With regard to the question of operating when deaf-mutes suffer from obstructed respiration, this should always be done, since it tends to improve health, and lessens the tendency, so frequently present, to chest disease. This may be done with the greater confidence, because in rare cases the hearing is improved in consequence of the operation, even in apparently hopeless cases.

Dr. WARDEN, having been a Medical Officer to the Royal Deaf and Dumb Institution at Edgbaston, had had some experience in the condition of the ears in deaf-mutes. They depend on such a variety of causes that, although there was some improvement in a few cases treated, the majority were not capable of satisfactory relief, the nerve lesion being so prominent a feature, and which, unfortunately, does not yield easily to remedies. With regard to the systems of teaching, he was of opinion that the combined system is most advantageous—the manual in some, the oral in others.

Mr. HARSANT had recently examined the hearing power of forty-five deaf-mutes in the Bristol Institution, and had been struck with the large number of children who had some remaining hearing power. Out of forty-five children, he had found three who could hear and imitate words, and another seven who could hear and imitate vowel sounds. He suggested that these children might be instructed by the oral or acoustic method, by which their hearing power might be improved.

Dr. MCKENZIE JOHNSTON (Edinburgh) had listened to Dr. Love's paper on deaf-mutism with the greatest interest. As an aurist to a deaf and dumb institution, he had made a routine examination of a large number of cases, and his experience was quite in accord with that of Dr. Love. The proportion of the children having some slight hearing power he found to be great, and the proportion of cases having throat catarrh, large tonsils, adenoids, &c., was even greater still. Without expecting any benefit to the hearing power, he was inclined, for the sake of the general health, to operate where the nasal respiration was markedly interfered with.

Dr. LOVE, in reply, said he attributed the great attention paid to his paper to a large-hearted interest which was now waking up in the minds of the members of the profession about the poor deaf-mute. He put much importance on the development of hearing, and thought the method he had called the oro-acoustic method was worth trying in many cases. The greatest practical difficulty in the medical treatment of deaf-mutes, and in the adoption of the best methods of education, was the apathy of those in charge of the institutions. Directors, too, often managed these institutions on purely commercial principles, and seldom was any member of the board skilled in the nature or management of deaf-mutes.

Case of Recurrent Fibrinous Rhinitis. By Dr. BURN MURDOCH (Edinburgh).

A. R. U., female, aged thirty-three.

Previous history : The patient enjoyed good health, with the exception of severe attacks of migraine. In the summer of 1885, fully four years before the attack about to be described, she had her first attack of hay

fever, and in each subsequent year has suffered from it in an increasingly severe form.

History of first attack of fibrinous rhinitis: This commenced on November 18th, 1889, with a slight cold in the head, which rapidly became very severe. In four days the nostrils were completely closed down to their orifices. A continuous discharge of muco-gelatinous secretion necessitated the constant application of towels to the nose by night and day. The nose itself became swollen and painful. Speech was indistinct and difficult.

On the sixth day white membranes were observed to protrude from the nostrils. They were tough, and came away in casts about the size of half the shell of a boiled bean, which they resembled in shape, but were not so opaque. They could be seen adhering to the mucous membrane of the inferior turbinated bones. Large quantities of them were cast off daily. The running from nostrils and general discomfort was such that reading or any work was prevented. Blowing of the nose was impossible, as the passages were completely blocked.

The whole appearance of patient's face was altered. The nose became much swollen, and seemed to rise out of the forehead and cheeks and project in a short cone. Slight erythema was noticed on the cheeks.

In a week's time the running had nearly ceased, occasional opening of the nostrils by blowing was possible, but they remained in general closed for three or four days more. The whole attack lasted about a fortnight. Frequent attacks of severe sneezing accompanied the malady, preceded by tickling in the back of the throat. There was no rise of temperature.

Till the second attack the throat remained irritable. There was persistent cough and frequent sneezing, but no actual cold in the head. About a week previous to this attack the fauces and larynx had been examined one evening in the usual manner. Whether owing to this or not the left half of the tongue swelled largely during the same night, so that by morning it was very difficult to articulate. The condition was suggestive of an effusion of blood, and I thought I should have to incise it. The swelling, however, subsided quickly in the morning.

Second attack: Commenced on February 15th, 1890, in a manner almost similar to the first. The running from nostrils was even more severe. Towels had again to be employed. Corrosive wool put into the nostrils afforded some relief; when removed the membranes adhered to it, appearing as if they had grown into the wool. The nose and cheeks were considerably swollen and became hot, red, and painful. The uvula swelled and the throat felt hard and dry. Breathing was difficult and the general discomfort intense. Hot bathing, iodoform, menthol, fluid vaseline and cocaine afforded no real relief.

Morphia and aconite in small doses checked the discharge a little. Towards the end of the attack when the nostrils were opening, cocaine also somewhat checked the running. The membranes practically ceased at the end of first week, but after the nose had become clear for a day or two, the muco-gelatinous discharge and closing of the nostrils commenced again and became as troublesome as at the commencement. The whole attack lasted a fortnight. A feeling of great irritation of the skin

generally accompanied this attack, and towards its termination some dark coloured spots were noticed down all the front of the left thigh. Some ran into each other. These persisted for several days. They resembled purpuric spots. Quinine and iron were given during attack.

Third attack : Commenced on the evening of April 17th, 1890, after travelling from London to Edinburgh. A slight sensation as of a cold in the head coming on accompanied it. During the greater part of the journey the patient felt chilly and suffered from cold feet. Next day (18th) she had a cold in the head with running of nostrils and sneezing. On third day (19th), cold was aggravated. Uvula was oedematous, and nose slightly swollen by the evening. During the night the nose ran freely, and the pillows were stained with muco-gelatinous discharge as on former occasions. Towels had to be used. The patient passed a miserable night on account of the nasal obstruction, throat swelling and pain in nose, which by next morning (20th) was much swollen, and the whole appearance of the face was again entirely changed. Some fibrinous membrane became detached from the left nostril.

April 21st : Nose more swollen, felt pulsating, frontal headache was present, accompanied by profuse discharge. Numerous well defined casts were thrown off from both nostrils. The temperature, though frequently taken, remained normal.

April 22nd : Face was very swollen, eyes puffy and lids oedematous. There was sneezing, with much discharge, and frequent casts.

April 23rd : Membranes stopped during night ; skin over cheeks and lips tender and indurated. During evening swelling of eyes and nose recurred, and fresh membranes formed in the right nostril.

April 24th : Breathing was much impaired by swelling of throat, and pronounced oedema of throat and uvula. The nose was completely blocked. The right eye became suffused. In the evening the skin over back and front of body, arms, hands, and legs grew very irritable. The least rubbing produced a red blush.

April 25th : During the night a large ovoid hard swelling occurred in the right half of the tongue, which by morning was much swollen and painful, rendering speech and deglutition difficult. It subsided entirely during the day. A spatula had been used gently the day before to depress the tongue during examination of throat. Throughout the 25th the skin irritation diminished. Face and nose were less swollen ; smell and taste commenced to return.

Improvement now gradually progressed, with the exception of a slight relapse on 28th, but sneezing, pricking of the throat, and more or less complete obstruction of the nostrils remained persistent.

Fourth attack : Commenced on May 26th, 1890, and lasted for fully a week. The symptoms, including the discharge of membranes, were similar to but not so severe as those formerly described.

Fifth attack : Commenced on November 13th, 1890, and lasted eight days. It was like the fourth in not being of so severe a type as the earlier ones.

Subsequent history : During the summer of 1890 and spring of 1891 the throat and nose remained irritable. Hay fever occurred as usual, but

in an aggravated form. In June, 1891, Dr. McBride examined her, and after carefully searching the mucous membrane of the nostrils for any specially irritable points he canterized them with the electro-cautery. Since this cauterization no attack of fibrinous rhinitis has occurred (till a recent one a fortnight ago, about to be described), nor has the patient had a bad cold in the head. The spring and summer of 1892 were spent by the patient in bed, on account of a severe illness, and it is interesting to note that no hay fever occurred.

In June, 1893, patient suffered from a very bad attack of hay fever, which was confined *entirely* to the eyes, and which became so swollen that she was blind for several days. On July 1st, 1894 (after this paper was written), having been exposed in the sun on a hot day in a meadow, an attack of hay fever commenced, which chiefly affected the throat and eyes. Nose symptoms shortly developed, and the patient for the sixth time suffered from an attack of fibrinous rhinitis. This closely resembled the former ones, a pronounced erythema, with oedema of the eyelids and cheeks being very marked. Membranes were shed on the evening of the 6th for the first time. They were not so numerous as on former occasions, and only appeared in the left nostril. Dr. McBride saw them *in situ*, and verified their appearance.

This attack undoubtedly began as hay fever usually does, and the patient had no nose symptoms till the erythema of the cheeks spread to the nose. No rise of temperature was at any time detected. The attack ran the usual course, but left the nostrils, especially the left one, much blocked.

Convalescence was accompanied by constant irritation of the throat and nose and a continuous sero-mucous discharge from the nostrils. Dr. McBride cauterized the mucous membrane of both the inferior turbinated bones on July 21st, since when decided improvement has set in.

The rarity of the case, the obscurity of its causation, and its intractability to treatment, have induced me to bring it before this section.

PATHOLOGICAL REPORT BY W. F. ROBERTSON, M.B.

The microscopic structure is of great interest, and very difficult to interpret. The membrane seems to be composed mainly of fibrin, containing numerous round cells, and is devoid of vessels. In addition, there are epithelial cells so arranged as to make me inclined to think that at places the whole depth of the mucous membrane has been shed.

Sections stained by Loeffler's method show no bacilli or other organisms. Sections stained by Gram's method show a few groups of micrococci which have no special significance.

DISCUSSION ON DR. BURN-MURDOCH'S PAPER.

DR. DUNDAS GRANT: It seems quite unlikely that this could be a diphtheritic case. My experience of fibrinous rhinitis is limited, and I relied upon Dr. Sendziak's belief that they are not diphtheritic. Subsequent results have led me to an opposite opinion. In the case of a

child with fibrinous rhinitis, post diphtheritic symptoms followed and others were infected. In another case presenting signs of post diphtheritic paralysis, there was a history of previous extrusion of a fibrinous cast.

Excision of the Malleus as a Preliminary Operation to Opening the Antrum in Cases of Suppuration from the Attic and Antrum. By THOMAS BARR, M.D. (Glasgow).

I have, within the past year, removed the malleus from seven ears affected with intractable suppuration from the attic and antrum. Six patients—five males and one female—were operated on, as in one patient both mallei were excised. In all the cases the purulent disease had existed for a very long period, ranging from seven to twenty-five years, and had been treated, at the hands of experts, by all the recognized ordinary methods—in no case for a shorter period than six months. In every one the discharge had been persistently offensive in spite of regular antiseptic cleansing. In three cases the tympanic membrane was entire, with the exception of a small perforation in Shrapnell's membrane. In the other four there was larger destruction of membrane, but clear evidence that the source of the discharge was in the attic or antrum or both. In regard to anesthetics, chloroform was administered in four cases, and in three, cocaine, applied repeatedly during the operation, was used with very satisfactory results.

In the three cases, having simple perforation of Shrapnell's membrane, I removed the upper part of the tympanic membrane so as to include the whole of the malleus. The spade-shaped knife was used for separating the head and neck of the malleus from their connection, afterwards suitable forceps were employed for extracting it. Sharp scoops, such as I show you here, were used to clear out the attic as thoroughly as possible, as well as in some cases to scrape away the softened bony edge of the Rivinian segment. The incus was in no case found, as probably in these cases it is destroyed by erosion, or so displaced as to be inaccessible by operation through the canal of the ear.

During the first week, fine powder of iodoform and boracic acid was insufflated as a dressing; afterwards the attic, and as far as possible the antrum, were regularly and daily syringed with a two per cent. watery solution of carbolic acid by means of an attic syringe, followed by the injection into the attic of a spirituous solution of carbolic acid or resorein. The attic syringe, which I find most useful, has a wider bore than the usual intra-tympanic syringe, whose narrow lumen I have found of little service in washing away the purulent and cholesteatomatous matter, which is so commonly found. It is necessary that the stream should be larger and stronger in order to exert a sufficiently strong mechanical effect upon the purulent *debris* in these spaces. I have rarely found it possible to syringe the attic efficiently previous to the removal of the malleus, the space leading up to the attic being too small for the introduction of the tube of the syringe. After the removal of the malleus, however, there is no such difficulty, the space being amply wide to allow of most effective syringing.

The therapeutic results from these operations have been improvement

in all, but permanent cure in none. In all, the discharge was lessened—in some, very markedly, and the offensive odour destroyed, at least so long as the attic syringe was employed. The most successful case was that of a young man, twenty-one years of age, whose left ear had discharged for eight years. There was a very small perforation in Shrapnell's membrane. He had been under treatment for at least two years without result. About a year ago the malleus and upper part of the membrane were removed. The subsequent use of the attic syringe brought away considerable quantities of desquamative matter. The result has been that, instead of a constant discharge, the ear now remains perfectly dry for several weeks, but it is then found to yield a slight moisture, which ceases for the same space of time after a single use of the attic syringe with an antiseptic solution.

In two, which showed least improvement, it was resolved, after some months, to proceed to the larger operation of opening the antrum from behind, and so gain access to the attic, hoping in this way to effect a cure. These two operations were performed by Dr. McEwen, of Glasgow, who operated with the dental burr and gouge. In both cases the incus was found in the anti-tympanic passage. It was removed along with granulation tissue and cholesteatomatous material, while the walls of the antrum and attic were scraped and burred as carefully as possible. Afterwards the spaces were filled with powder of iodoform and boracic acid, and stuffed with gauze. The parts remained undisturbed for a fortnight, when the powder and stuffing were removed without syringing, the cavities being looked at and re-stuffed weekly for a month or thereabouts. The opening behind into the antrum was all along treated on the dry method, but after six weeks the ear itself was occasionally syringed. The first case was operated upon on the 16th of March last, and was that of a lady twenty-eight years of age, with a history of twelve years' suppuration, with perforation in Shrapnell's membrane, the discharge having been all along most offensive and copious. I removed the malleus on 30th September, 1893, with the effect of only slightly diminishing the quantity of the discharge, and the major operation was performed on the 16th March of this year. The result has been most gratifying. It is now over three months since the operation, and the ear is entirely dry: indeed, there has been no discharge after first cleansing after the operation. The hearing power of the ear, however, is less acute than previous to the removal of the malleus, but this is considered a small matter compared with the vastly important effects upon the purulent disease.

The second case operated upon by Dr. McEwen was that of a gentleman thirty-two years of age, both of whose ears had been affected since childhood by a foetid purulent disease. I removed both mallei: the one on the 23rd June, 1893, and the other on the 11th September, 1893. Large quantities of caseous matter were from time to time removed from both attics with the attic syringe. The hearing improved and the discharge markedly diminished in the right ear, but in the left it remained pretty much the same. In the left ear, after a time, the opening into the attic contracted so as to prevent the efficient use of the syringe. The major

operation was performed on the 6th of June last, and so far the result promises to equal the first case. Here the incus was also found in the anti-tympanic passage and removed.

In regard to these two cases, we cannot, of course, base very much upon so limited an experience, but, so far as this limited experience has gone, I am disposed to think that when the removal of the malleus and corresponding part of the membrane does not lead to the entire cure of this persistent form of purulent disease of the ear it may prove a very useful preliminary operation to the more serious one of opening the antrum and attic. I think the latter operation may have a better chance of success after the former. Only larger experience, however, will determine whether the preliminary operation of removing the malleus and, if possible, the incus may not ensure that a better result will follow the opening of the antrum, and whether we should not, in all cases after finding that only partial success follows the smaller operation, proceed to the major one.

DISCUSSION ON DR. BARR'S PAPER.

Dr. KNAPP (New York): From the little experience I have in the removal of the hammer alone, I cannot but agree with Dr. Barr's statement that this operation rarely produces a permanent cure. We know that the anvil is more often carious than the malleus. Excellent results are obtained by Stacke's operation, as I have convinced myself by witnessing and watching several cases operated on in my clinic by an assistant of mine, Dr. Vulpius, a former assistant of Stacke's. I think, however, that oftener than by any of these operations the cleansing of the middle ear will be successfully accomplished by penetrating into the tympanic cavity and attic through the mastoid antrum and its neck, after the soft posterior wall of the ear canal has been detached and pressed against the anterior. In this way I have operated several times myself. In many cases, however, we have to operate more than once to obtain a permanent recovery.

Observations upon Excision of the Ossicula Auditûs in Chronic Suppurative Otitis Media. By Dr. MILLIGAN (Manchester).

Mr. President and Gentlemen,—Among the various problems which have of late years been occupying the attention of otologists, the question of the advisability or otherwise of removing the ossicula auditûs (*per meatum*) in chronic suppurative affections of the middle ear has held a prominent place. So far this question has by no means been settled, nor, indeed, have the exact indications or limitations for its performance been definitely agreed upon.

At the present moment, therefore, the surgeon has to rely mainly upon his own individual judgment in any given case without having the benefit of that definite expression of opinion which alone is to be derived from the free discussion of any question about which there is considerable divergence of feeling.

In the Otolological Section of this Association last year I had the privilege of reading a short communication upon "The Treatment of

Chronic Suppuration of the Middle Ear by Excision of the Auditory Ossicles," and of recording several cases in which this procedure had been attended with favourable results. Since that time my attention has been much given to this subject, and, as there are many points connected with the indications for the operation, the actual *modus operandi*, and the necessary lines of after-treatment, I have taken the liberty of again bringing the matter forward, with the hope that the views of some of those here present may be given, and points which appear as doubtful be fully discussed.

It may be taken, I think, for granted that any idea of such operative interference is entertained only in those cases in which the more usual, or what one might call the minor methods of treatment have been carefully and persistently carried out, and have failed to check the purulent discharge. By such minor measures I mean the regular flushing of the middle ear, either *per tubam* or by means of intra-tympanic canule of one form or another, the local application of astringent, antiseptic or caustic preparations, the removal of masses of granulation tissue tending to maintain purulency and to retain discharge, the tamponing of the part, as suggested by Gruber, and the employment of all those measures, hygienic and tonic, which tend to promote the general well-being of the patient. Notwithstanding, however, all possible care and perseverance, the surgeon will frequently be disappointed with the continuance of the morbid process. This happens not only in those cases in which the focus of the disease is in the tympanic attic, but also in certain cases in which the brunt of the disease is located within the atrium. If we look for the reason why this should be so, we shall, I think, in most cases find it due to one or other or both of the following causes:—

1. Imperfect drainage.
2. The presence of bone disease.

The first cause is undoubtedly the more important, for I presume that if we could obtain proper surgical drainage from the outset the second cause, the presence of bone disease, would rarely exist. The long-continued suppurative inflammation of the muco-periosteum lining the middle ear causes progressive erosion, with the result that bone is laid bare and carious processes are set up. As the muco-periosteum lines the tympanic cavity and clothes the ossicula auditus, it is obvious that in time we may have parietal or ossicular caries, or the two combined. Bearing this in mind, it will readily be seen how essential it is to secure free drainage from the outset, so as to minimize at any rate the chances of secondary bone trouble. In those cases in which the morbid process is situated in the epitympanum, everything would appear to be against the attainment of this great principle. The accompanying perforation is high up upon the surface of the membrana tympani, is as a rule small, and frequently surrounded by granulation tissue. The folds of mucous membrane also normally existing in this region form loculi, which tend to retain the discharge, thus favouring stagnation and subsequent decomposition. Added to this is the clinical fact that in many such cases inflammatory adhesions shut off the atticus from the atrium.

Hence we find a localized purulent collection constantly bathing the head of the malleus, the body of the incus, the crura, and the foot plate of the stapes hemmed in above by the thin and at times deliquescent tegmen tympani, and upon the inner wall by the upper portion of the pars promontoria.

The extent and the situation of these secondary changes is naturally a matter of great moment and one not by any means always easy to estimate. Where extensive disease has taken place in the parietes of the middle ear, the mastoid antrum, and even the mastoid cells, no surgeon of any experience would, I presume, anticipate a cure of the morbid process by the mere removal of the remnants of the membrana tympani and the two larger ossicles. These bonelets play but a small and a secondary rôle in the pathology of the disease now under consideration. Nevertheless, they are prone to become diseased from the reasons stated above, and when diseased they naturally become more or less functionless, while at the same time they, from their presence and from their connection with other and adjoining structures, not only form a barrier in the foreground—a barrier which prevents the all-necessary local treatment from being satisfactorily carried out—but act also in the capacity of foreign bodies. The primary disease undoubtedly lies deeper, but if the portal be inefficient, how can the purulent exudations find an easy exit or remedial agencies an efficient entrance? It has been said that in these cases the disease is never limited to the soft parts and the ossicula, but that the surrounding bony parietes are eroded, while at the same time the antrum and even the mastoid cells are similarly affected; hence that the mere removal of the membrane and the bonelets could in such cases have no curative effect whatever. Were these premises always correct, I admit that the operation must of necessity be doomed to failure. It appears to me, however, that clinically we meet with a certain class of case (I admit it is but a small class) in which the morbid process has so far, at any rate, involved only the soft parts lining the atticus or the antrum and the portions of the ossicula lying in this immediate neighbourhood, while the parietal portions of the bone, if affected at all, are so to a limited extent. Such cases, we know from experience, are the very cases in which the morbid process is prone to become chronic, while at the same time it is just in these very cases that good results may be expected from ossicular excision.

It may be contended that in such early cases other and simpler methods of treatment will suffice to arrest the suppurative process, but experience does not, I think, bear this out. Circumstances are decidedly in favour of the process becoming chronic. I can recall but few cases of attic disease which, having passed beyond the acute stage without complete recovery, have been found to yield to any of the minor methods of treatment as previously detailed; while, on the other hand, every aural surgeon knows how troublesome chronic disease in this region is, and how his resources are frequently taxed to the uttermost, to say nothing of the patience of his patient. The presence of the malleus prevents proper access being gained to the epitympanum; hence the necessity of removing it, the more so of course, if diseased.

When local treatment should be stopped and when surgical treatment should be commenced is indeed a fine point to decide. I take it that the value of operative procedures in this region lies in the fact that, a series of intricate spaces having been opened up, room is gained for drainage, for inspection of the diseased tissues, and for the application of remedial agencies.

The diagnosis of ossicular caries is not by any means always an easy matter. If, however, a slender probe with slightly bulbous extremity be carefully introduced through the perforation and search made, rough and eroded surfaces upon the bone can, as a rule, be detected when present. Granulations bulging through the perforation are not certain signs of caries, although naturally suspicious; neither is fetor of the discharge, for the loculi formed by the folds of mucous membrane in this region may readily retain the secretion until decomposition has set in. Where the perforation occupies the posterior part of Shrapnell's membrane, caries of the incus will be found to be more frequent than when it is placed anteriorly.

It has been contended that ossicles have been removed which, on minute examination, have been proved to be quite free from disease. Even if this be so, no great harm would ensue. By their removal the recessus epitympanicus is opened up, better drainage is secured, and more space is afforded for manipulation, while, at the same time, it must be borne in mind that the ossicula are by no means essential for the purposes of good hearing. The indications which have, up to the present, been taken as necessitating operative interference are—

1. Chronic purulent disease of the recessus epitympanicus, with ossicular caries.

2. The presence of cholesteatomatous masses in the tympanic cavity.

It seems to me that, in the light of our present knowledge, these reasons are too vague, and that the main indications will be found to be either the presence of early chronic disease in the epitympanum, where examination reveals the presence of ossicular disease alone, or with but slight involvement of the surrounding bony parietes, or chronic disease in the atrium, where proper drainage cannot be maintained, and where ossicular disease is proved to be present. Knowing as we do the marked tendency cholesteatomatous masses have of producing erosion and disintegration of bone, it seems to me that a more radical operation is required when such masses exist.

I would venture to narrow the scope of the operation to these two indications, and would even go a step further and say that if attic disease has existed for more than a few months, and has been carefully treated without the desired result having been obtained, the operation should be undertaken. Should the suppuration fail to be arrested even after this, then we would have an indication that other and more deep-seated carious areas existed either in the tympanum, the mastoid antrum, or the air cells of the mastoid process. Excision of the drum head permits, at any rate, of a more thorough and more accurate diagnosis by means of the probe, and the possibility of direct irrigation and canterization of the diseased areas of bone; while, on the other

hand, opening of the mastoid antrum would not in any way be complicated by what had already been done. It may be urged, on the other hand, that it is preferable at once to perform some form of antrectomy, but I think we must bear in mind that opening and draining the mastoid antrum is a much more serious manipulation, on account of our uncertainty beforehand as to the course and depth of the lateral sinus, and of the relation of the antrum to the base of the middle cranial fossa. In addition, the after treatment of an antrectomy is much more troublesome and more tedious, and hence it seems to me that the patient should get the benefit of the minor operation before any idea of the major is entertained.

If this be accepted, it will be seen that the scope of the operation is indeed limited, and such I believe it to be. Great discrimination must be exercised in selecting the cases for this particular line of treatment. In my experience only those cases are suitable where, as before stated, ossicular disease alone—or, at any rate, with but slight parietal disease—is found. Where more extensive trouble exists, Stacke's modified mastoid operation will be found the surest means of attaining success.

On the other hand, however, it may be said, "Why operate at all under such circumstances? Should we not rather wait and watch the development of affairs, ready to step in at once if evidences of extension of disease appear or symptoms of retention manifest themselves? As the hearing power in cases of attic disease is frequently hardly appreciably affected, should we by performing an operation run the risk of injuring this delicate sense?" Are we justified, however—even supposing the case be kept under close observation—in allowing the patient to run the risk which may quite suddenly ensue from gradual erosion of bone, with consequent absorption and dissemination of pathogenic organisms? Questions such as these are most difficult to answer, but most important to definitely decide.

The question of anæsthesia during the operation becomes an important one. A general anæsthetic may be given, the patient lying upon the table with the head slightly raised; or ether having been administered, the patient may be propped up in a chair, and the head held by an assistant. Or again, local anæsthesia may be induced by the injection of a four per cent. solution of cocaine into the middle and external ear. If the patient be placed lying upon an operating table, considerable difficulty will be experienced, as the position of the parts appears somewhat altered, and instrumentation becomes difficult. Local anæsthesia with cocaine may in certain cases be sufficient, but at times entirely fails. With the patient propped up in a chair, ether may be safely given by a skilled anæsthetist, and as the parts are in much the same position as one is accustomed to, the necessary manipulations may be carried out with comparative ease.

Hæmorrhage becomes at times a real and serious trouble, as with the field of operation flooded it becomes impossible to see what one is doing. This is more especially the case where one has to deal with the presence of small tufts of granulation tissue growing from areas of diseased bone. Instillations of cocaine solution (four to ten per cent.) may be used previous

to the operation, or the solution may be injected subcutaneously in the region of the tragus, or behind the attachment of the auricle. Or again, Ludwig's suggestion to inject subcutaneously solutions of *secale cornutum* may be adopted. I am rather in favour in such cases of dividing the operation into two stages, and upon one day removing under cocaine anæsthesia the granulation tissue, and upon another completing the ossicular excision.

As the incus is the bonelet most frequently found diseased, careful search should always be made for it, and extraction effected. At times this will be found very difficult, but can usually be accomplished by one or other of the incus hooks now in use. In many cases, however, the incus will be found absent, having been destroyed by the previous suppurative process. When present, both malleus and incus should, I think, always be removed together. Regarding the after treatment of operation cases, it is important to decide what line of procedure should be adopted. Should the parts be kept quite dry, the secretion being merely mopped away by means of a cotton-armed probe, or should daily irrigation be practised and antiseptic lotions used?

I have endeavoured, sir, to present a few of the practical difficulties connected with excision of the auditory ossicles to this meeting, in the hope that some definite working basis may be formulated. The success which has attended excision of diseased ossicula in chronic suppurative middle-ear disease has been such that there exists a tendency to extend the indications for its performance to cases not strictly suitable. Disappointment consequently ensues, with the result that there is a danger of the operation falling into discredit. It seems to me, sir, that the difficulty lies not so much in the carrying out of the necessary *technique* as in knowing exactly when the operation is indicated and when it is contra-indicated.

A Successful Method of Examining the Larynx, and Removing Laryngeal Growths in very Young, Nervous, or Unmanageable Children.
By SCANES SPICER, M.D. (London).

About six years ago, a case of chronic hoarseness and stridulous breathing in a child aged eight years, due to multiple papillomata on the vocal cords, led the author to perfect a procedure by means of which the larynx could be examined without failure and laryngeal growths removed.

In laryngoscopy in these children the chief difficulties to be overcome are that the patient, from lack of self-control or terror, is unable to give the observer the assistance given by an adult; and that, even if it can be so far managed, involuntary spasm of the pharynx and upper orifice of the larynx blocks the view; or, even if the child at first admits of examination either without or with cocainization, and even an introduction of the forceps, it is unable to stand the necessarily repeated moppings and forceps introduction.

On resorting to general anæsthesia with chloroform, two difficulties are encountered, in addition to special dangers of chloroform in laryngeal operations: firstly, unless a very deep degree of narcosis is produced, the pharyngeal and laryngeal reflexes are not abolished, and spasm

occurs on introducing forceps, etc. ; secondly, salivation and the secretion of mucus is inconveniently profuse.

To overcome the first difficulty, the author suggests the cautious use of a spray of ten per cent. cocaine solution, and, for the second difficulty, the free use of a dry mop of cotton-wool. Five assistants are required : No. 1 to give the chloroform, maintaining moderate general anæsthesia ; No. 2 nurses the child in the usual position for laryngoscopy ; No. 3, standing behind the patient, keeps the head erect and square to the operator ; No. 4 stands behind and to his right, holding the mouth-gag ; No. 5 holds the tongue out with forceps.

In this way the operator can remove the growth piecemeal—first spraying the larynx with cocaine, then mopping, and finally using the forceps in the usual manner.

Dr. Spicer has found the method useful both for examination and for operation.

Dr. FELIX SEMON (London) said that Dr. Scanes Spicer's new method of examining the larynx and removing laryngeal growths in very young or unmanageable children certainly appeared to deserve a fair trial, and, if serviceable, would prove a real boon in a class of cases hitherto hardly accessible to intra-laryngeal treatment.

Dr. DUNDAS GRANT (London) thought he saw a new field of usefulness for his safety endo-laryngeal forceps for the removal of growths under combined chloroform and cocaine anæsthesia.

Dr. WILLIAM HILL had successfully used Dr. Spicer's method in two cases.

Treatment of Acute Laryngeal Stenosis. By WILLIAM PERRY NORTHROP, M.D. (New York).

In the interpretation of our subject (acute laryngeal stenosis) we shall assume in this paper that we have to do with diphtheria, true or false, involving the larynx in children. Concerning its treatment we shall emphasize two methods, a medicinal and an operative (at present in favour in New York), viz., calomel fumigation and intubation.

What medicinal treatment have we to recommend beyond steaming, vomitics, etc., to determine a favourable course in laryngeal diphtheria, to relieve by milder methods the urgent symptoms? Our answer is calomel fumigation.

This method was first publicly advocated by Dr. J. C. Corbin, of Brooklyn, in 1881, was later taken up by Dr. O'Dwyer, in New York, and has steadily gained in favour. It is believed that by all former methods of treatment, without operation, about ten per cent. of pseudo-membranous laryngitis recover. (J. L. Smith and O'Dwyer.)

Statistics have not accumulated sufficiently to frame a strong argument in regard to calomel fumigation, but the conviction of those best capable of judging is positively favourable. In two hundred and seventy-five cases of "true croup" collected by McNaughton and Maddren, 48·7 per cent. recovered, the only treatment being calomel fumigation ("sublimations"). Again, this medicinal treatment is advised after operative procedure has been required, and here its advocates are equally positive

that it acts favourably. Dr. Brown gives four hundred and eighty-three cases of laryngeal diphtheria treated *without* calomel fumigations, with 35.4 per cent. recoveries; two hundred and fifty *with* calomel fumigations, with 47.5 per cent. recoveries.

It goes without saying that a child which tides past the urgent symptoms on fumigation, without operation and without wearing an intubation tube, other things being equal, makes the better and speedier recovery.

Method of fumigation.—A tent or canopy is rigged about the top of a crib in any way most convenient. A sheet is thrown over supports, and allowed to fall about the four sides of the crib. The supports may be upright sticks lashed to the four corners of the crib, or a line stretched between two uprights at diagonally opposite corners, or a step-ladder placed astride the middle of the crib, or any other extemporized frame suggested at the time by the ingenuity of the persons in charge. The main point is to have a fairly large and fairly tight enclosure. In such a tent the child lies undisturbed; if sleeping, so much the better.

The crib "tent" shown in photograph is in use in the Willard Parker Hospital, New York; it contains about fifty cubic feet of air.

The apparatus for furnishing fumes must first of all be safe from upsetting and the danger of fire. Such a one is easily extemporized in the following manner:—Select some deep vessel, a wash-bowl, saucepan, or *pot de chambre*; place in this an alcohol lamp, lay across the top a tin strip of any kind, and over the spot where the flame of the alcohol lamp touches the underside of the tin make a little compact pile of the requisite amount of calomel for a single fumigation.

A special lamp has been constructed by Geo. Ermold, the instrument maker. This can be hung up by wire, or can stand on a plate or in a pan, as desired. As to the child, fumigation is often given while it sleeps, and it needs no preparation. Ordinarily, eight to ten minutes are required to volatilize the calomel, and the tent should be kept closed about fifteen minutes.

A very safe and satisfactory method in severe cases is to volatilize in an ordinary crib tent fifteen grains every two hours for two days and nights, then prolonging the intervals to three hours on the third day, four hours on the fourth day, fumigating three times a day; thereafter according to indications. (O'Dwyer.)

Attendants become easily salivated from inhaling calomel fumes, and must be cautioned. The room should be thoroughly aired after opening a tent. It is well, when circumstances permit, to fumigate in a separate room, removing the child and attendants to fresh room while the other is freely aired.

Now what effect has fumigation upon the patient, the child? It does not suffer pyralism. Occasionally, especially older children, after days of treatment, have a mild stomatitis, sometimes diarrhoea. If the calomel is impure there may be conjunctival irritation. Chemically pure calomel is essential. After prolonged use there is more or less anaemia. This must be combated by administration of iron, and if there is associated prostration a little whisky may be required before fumigation.

The above directions are quite in the line of moderation. Many physicians vaporize twenty to forty, or even sixty grains, and make the intervals in urgent cases no more than half an hour at first. Such practice is considered safe and justifiable, but symptoms of prostration and anæmia are likely to appear after a few days. It is a desperate disease, and warrants heroic treatment.

I am not one of those who urge calomel fumigations in all diphtheria as a prophylactic, nor one of those who think they know how it acts ; but I am of the number who believe it affords relief from the urgent symptoms, many times, when no other medication will, and helps the patient to survive the stress without operative procedure. To this intent I employ it, to this extent I recommend it.

INTUBATION.

A progressive dyspnœa, uncontrolled by calomel inhalations, comes at length to require operative interference. Our part is to speak of intubation, and we shall discuss it under the following heads :—

When to operate.

How „

How to remove the tube.

When „ „

Dangers and difficulties of operation.

„ „ „ wearing.

„ „ „ removal and thereafter.

Advantages.

When to Operate.—When a progressive, unremitting dyspnœa, despite all previous treatment, allows any considerable part of the posterior portion of the lungs to become non-inflated, when the laboured breathing begins to produce sensible exhaustion, intubation is to be performed promptly. From this moment nothing but harm can come to the lung and to the heart. If air cannot be aspirated, blood will be, and pneumonia is invited.

How to Operate.—The *technique* of intubation having become so thoroughly a matter of literature, we will emphasize only certain points. Wind the child from chin down in a light blanket, shoulders, arms and hands included. Pin the blanket closely about the neck, and yet do not make a bulky roll to interfere with depressing the introducer handle. In this way the elbows are pinioned to the side and the hands are held across the child's abdomen.

These precautions cause no annoyance to the child ; it does not worry or resist, and when the time for rapid action arrives it cannot move. The nurse who is to hold the child should sit in a high, firm chair bolt upright. The child should be placed upon her lap, nurse and child exactly facing the operator. The nurse being upright, not leaning back, should grasp the child's elbows firmly, outside its winding blanket of course, and clasp the child's legs between her knees, making sure she twines her own about the legs of the child. All these precautions are to secure the child in a firm grasp, to immobilize it without interfering with the expansion of its chest, and may be taken without causing any

apprehension or excitement. *The position of the child should be as though it hung from the top of its head.*

The physician assisting should stand behind the chair of the nurse, grasp the child's head between his hands, hold it firmly, and when the gag has been inserted include it within his grasp to insure its firmness and steadiness. The operator, seated or standing squarely facing the child and nurse, inserts the gag, opens the mouth widely, and gives the handle into the keeping of the assistant. At this point, for the first moment the child worries; yet from this point to the end of the operation need be but a few seconds, though it takes some moments to describe it. The introducer, armed with the proper sized tube, is supposed to be threaded and at hand.

Just at this point it is well for the operator to be sure that all the above directions have been carefully carried out, that the position is exact, the gag well held, the grasp firm. A moment suffices, and it is time well spent. Next he inserts his left index finger, hooks up the epiglottis, crowds his finger to one side, passes the tube past it till it engages in the chink of the glottis, elevates the handle, gently passes the tube down till the head is within the box of the larynx and the introducer lies crowded upon the tongue. He then, with the trigger, loosens the obturator, holds the tube with the left index finger while withdrawing the obturator, and with a gentle thrust presses the tube's head well into the larynx and removes the finger and gag. Just here let me emphasize what is stated above—keep the introducer in the middle line; otherwise the obturator will pinch in the calibre of the tube and drag the tube with it as it is withdrawn.

The handle of the introducer should be held most lightly between the end of the thumb and the fingers. In this way it is impossible to use enough force to make a false passage. It is easy for a right-handed operator, inadvertently, to carry his handle to the left of the child's middle line. It is often that the child manages by one effort to slip down in the nurse's lap, while the grasp which the assistant exerts tilts the head back, and the tube may then impinge on the anterior wall of the larynx. The lines and angles must be maintained to insure quick intubation. The lack of observance of, and carelessness in, these points explain many failures of inexperienced operators.

Again: suppose on the first attempt the tube is not successfully placed in the larynx? How long shall one try? Shall one repeat the attempt? It is better to make repeated short attempts than prolong one.

Having placed the tube in the larynx, there will be rattling in the tube on first respiration, and subsequent cough and expectoration. A vigorous cough argues well for the sensitiveness of the parts, and for evacuation of accumulations below. The gag is removed as soon as the tube is in place, but not so the thread; it must remain till it becomes evident that all obstruction to breathing has been overcome, and no partially-detached false membrane is in the trachea below the tube. The thread at first acts as an inciter to cough, which is desired; ordinarily, ten minutes are sufficient.

How to remove the tube.—Place the child in the position for intubation

as described above. Thrust the left index finger past the epiglottis, hook it up, rest the tip of the finger upon the two arytenoid cartilages and carry the extractor point to the end of the left index finger at the pulpy portion generally regarded the most delicately tactile. The situation is then as follows :—The finger tip upon the arytenoids marks the posterior boundary of the glottis in the median line. Now, if the extractor point be carried along the median line to the end of the finger and the handle be elevated, the point will naturally be prized forward from the end of the left index finger on the arytenoids, into the aperture of the tube. To me this seems the most satisfactory method for a beginner. I have described it to several, and their successes have justified the plan. The guard screw of the extractor-lever should be carefully set to avoid injury to the tissues in case the extractor-jaws should be opened by mistake in the soft parts instead of in the tube. Of course the difficulty of removal is to find the opening in the tube. Many operators, both in Germany and America, leave the thread attached throughout the whole time, and occasionally a tube is coughed out after the swelling releases its grip. So in actual experience one is not called upon to extract so often as to intubate. The fact remains that extubation is more difficult.

When to remove the tube.—This depends on the age of the child and duration of the disease before intubation became necessary. The older the child the earlier the tube can be dispensed with. Estimating the maximum of the disease to be seven days, five days' wearing the tube is considered, on an average, sufficient.

DANGERS AND DIFFICULTIES OF THE OPERATION.

In the hands of an *experienced* operator there are practically *no dangers to life* at the time of operation.

A few authentic cases of pushing down membrane before the entering tube have been recorded. It happened to O'Dwyer three times in his first two hundred and nine cases, on first intubation. Expert intubation presupposes that the thread has been left attached, and therefore easy immediate removal is possible. What does it mean, then, to push loose membrane into the trachea from tissues above the larynx, for instance ? It means more room in the larynx. If the tube is removed, the mass of membranes is forcibly ejected, and the patient is really benefited by the proceeding, and at no time endangered. This experience with loose pseudo-membranes occurs more often late in the disease, and in re-intubations.

To the *inexperienced* there are many dangers : (1) asphyxia from prolonged attempts, (2) laceration of the parts, false passages, etc. The explanation usually given to those two most common accidents is "pushing down false membrane." So called syncopal attacks are simply lesser attacks of asphyxia. Convulsions are recorded, and instruments have been broken in intubation.

DIFFICULTIES.

An experienced operator may encounter two difficulties.

1. The point of the tube may enter one of the ventricles of the larynx. This is not common, for the original disease usually fills and obliterates

these cavities. Such obstruction, however, does occur. It may readily be seen how an inexperienced, sure that his tube and handle were exactly in the middle line, might force his tube into the tissues of the neck. He certainly has but to remember the cardinal points of advice, and he will use most gentle pressure ; indeed, he need but look at the light introducing instruments to appreciate that they are for delicate work.

2. The second difficulty or obstruction that an experienced operator may meet in intubation is subglottic stenosis—or what is so often described as “œdema.” The narrowest part of the respiratory ways is the cricoid ring. This fact, so far as I know, came to light for the first time, in Dr. O'Dwyer's early investigations in intubation. If the head of an intubation tube be forcibly crowded down from above, it may pass the vocal bands, and yet resist all effort at the cricoid ring. Given a resisting cartilaginous ring lined with mucous membrane, we have the very elective conditions for stenosis. Fortunately, the swelling and infiltration are not often extensive enough to cause serious obstruction, but may be. Operators come upon cases where the properly selected tube surely passes into the larynx, and yet encounters resistance—even “creeps back,” as someone says, “like an oiled cork in a bottle.” If one is sure of the diagnosis, and a proper size fails, a smaller tube may, with moderate pressure, be introduced. This is the only condition where force is justified in intubation.

DANGERS AND DIFFICULTIES OF WEARING.

1. The tube may become obstructed by loosened *plaques* of false membrane. This constitutes the one important danger in wearing an intubation tube. It is easy to understand that large *plaques* may become loosened and detached in the trachea, especially after several days of the disease.

A detached *plaque* may act like a valve at the tube's lower end, closing on expiration, opening on inspiration till the lungs become quite distended from accumulated air. Such is exactly what happened in three of O'Dwyer's first two hundred cases, with three deaths.

At this point let me interject the symptoms of loose membrane :—
(1) croupy character of cough (tube being in) ; (2) flapping sound ;
(3) most important, sudden obstruction to outgoing air, especially during coughing.

If the string had been left attached in O'Dwyer's three cases this danger would have been obviated. Most Continental operators loop the thread about the ear, protecting it along the cheek with rubber adhesive plaster, and leave it throughout the wearing of the tube. This is advisable outside of hospital, with beginners, and in case loosening pseudo-membrane is suspected in the trachea. Possibly, mucus may gradually collect in the tube, of such a tenacious quality, especially in mouth-breathers suffering from high temperature, that it becomes an embarrassment or even danger.

Short tubes (loose-membrane or foreign body tubes).—At this point let me call attention to the special tubes devised for the easy expulsion of loose membrane and foreign bodies. They are short, hollow cylinders of large calibre—short enough not to push down the tracheal membrane,

yet long enough to reach below the cricoid stenosis and large enough to permit masses to pass through them.

Occasionally a long tube loosens the upper attachment of a tracheal cast and crumples it into a wad below the end of the tube. The usual result is, as would be expected, apnœa. Immediate removal of the tube is commonly followed by either expulsion of the cast or other disposal of the mass in the comparatively large trachea. At this point, when the long tubes have failed to give relief, the short cylinders become of temporary service.

These tubes are of various sizes, seven in number. Since they have no retention swell it is necessary to use the largest size possible, wedging it into the larynx, and for obvious reasons in the line of pressure, not leaving them more than a few hours in place. They require a special introducer with long curve in order to carry the short tube well through the cricoid constriction before withdrawing the obturator.

In short, to allow the expulsion of loose membrane from the trachea, the largest possible hollow cylinder is passed through the narrowed larynx, allowed to remain for a little, and removed as soon as the resulting cough has expelled the foreign body requiring its insertion.

2. Ulceration from too large a tube making pressure within the cricoid ring, and ulceration at the lower end of the tube. The former can be of a serious nature, destroying the cartilage; the latter is superficial and of little import. Ulceration within the cricoid is due to improper size; ulceration below to improper construction of tube.

Properly constructed tubes are difficult to describe, more difficult to secure from a maker, even if a most faithful and conscientious servant. But one maker in this world has succeeded in making tubes that embody all the ideas of the inventor. He alone has been willing to try over and over to make O'Dwyer's tubes. All others have felt the quiet self-conceit that the inventor thought he knew what he wanted, but in the maker's mind he did not, and would get over it sooner or later.

Every swell and knob, every constriction and crease, every hole, the canting back of the head or collar—all is the work of the inventor, to make the tube conform to the anatomy of the parts.

I should not dwell upon this so much had I not on former visits to England seen tubes from your best makers, which tubes embodied every vice which the inventor has sought by most careful description to warn against.

I say again, but one maker in this world makes O'Dwyer's tubes, the others make maker's tubes.

FEEDING AN INTUBATED PATIENT.

There is one disadvantage after operation. Feeding is difficult. The larynx is sore. Many times it is sorer because of the inexperience of the operator. The less the larynx is bruised in intubation, the less the child will dread the clasp of the pharyngeal muscles in the act of deglutition. The fact remains that there is more or less difficulty in swallowing, both from pain and cough. The latter arises from fluids entering the trachea, though many patients acquire the accomplishment, and learn to swallow

very well. The method of feeding adopted by Dr. Casselberry, of Chicago, has very much relieved the situation. The child is inclined, head down, so that it swallows uphill, and any fluid that may get into the tube in the act of deglutition quickly gravitates out again. The directions are as follows:—Place the child across the nurse's lap, bend the head well down, and feed either with a spoon or through a nursing bottle. At first these patients object, but when they learn that by so doing they can swallow without coughing they give no further trouble.

Medication can be continued after intubation as well as before.

DANGER OF REMOVAL AND THEREAFTER.

If the tube is removed on the fifth day in a case having an average fair course, there is little or no danger. The operator should remain half an hour. If in this time there has been coughing and clearing of the throat and trachea, and no loose pseudo-membrane remains, and no dyspnoea there will be no sudden urgent necessity of rapid reintubation. Even yet it is deemed desirable to be within easy call for some hours.

I once considered I had on an average four hours' leeway, but, exceptionally, prompt aid was needed sooner, and a few cases needed reintubation twelve and twenty-four hours afterwards. Whether, pressure removed, the mucus membrane becomes quickly congested, or whether muscular spasm sets in, or membrane reforms, I know not, but I have learned to respect the emergency of the first twelve hours after removal of the tube, especially if it be a premature removal.

RETAINED TUBES (LARYNGEAL CANULÆ).

Rarely, it is necessary to reinsert a tube many times. The child may get along half a day or two days and yet require the reintroduction. If the tube is not of proper anatomical conformity it may cause granulations about the head. To relieve this and cure the condition, a special tube has been devised, having a prolonged or built-up head. It rides above and causes pressure upon the granulations, with consequent absorption.

Finally, not to recapitulate the literature of the subject, I may mention advantages. *First of all, parents will consent.*

It is a bloodless operation; no cutting, no anæsthetic, and this means much to the friends. It is quickly performed, requires no trained assistants or trained attendants (it is trained operators that are needed). The air inspired is warmed and moistened through natural passages. Results are equal to or rather better than those of tracheotomy under similar circumstances, whether in hospital or outside.

DISCUSSION ON DR. NORTHROP'S PAPER.

Dr. FELIX SEMON: The speaker asked for information as to the frequency of obstruction of the tube after intubation, and expressed his misgivings about the risks thereby incurred, unless the patient could be kept under the constant supervision of a practitioner skilled in the performance of intubation, and ready, if necessary, to reintubate immediately. He further asked what the *rationale* of intubation in cases of new growth in the larynx, and of bilateral paralysis of the abductors

was, in which it also had been recommended, and dwelt upon its risks (detachment and pushing down of fragments of growth, asphyxia, hæmorrhage, "Schluckpneumonie") in the former class of cases, whilst expressing his belief that it could be of no lasting use whatever in the latter. Finally, whilst fully admitting the usefulness of intubation in certain cases of chronic fibroid stenosis of the larynx, he warmly recommended, in cases particularly of *syphilitic* stenosis in which the voice had already been lost and tracheotomy been performed, thyrotomy with subsequent excision of the fibroid tissue as a means to enable the patient to dispense with the permanent wearing of the tube. Mr. Butlin's simple after-treatment of thyrotomy had divested that operation of most of its dangers.

DR. BLACKADER: I desire merely to express what I believe to be the opinion of the profession in Montreal in reference to intubation, the merits and methods of which have, I think, been so clearly stated in Dr. Northrup's paper. In the first place, we find it comparatively easy to induce the parents to accept intubation for their children when it is really called for. It is always difficult to obtain their consent for tracheotomy till the case becomes desperate, and the strength of the patient much impaired. Again, O'Dwyer's tubes pass beyond the region of narrowing in the cricoid. The danger of obstruction below this, except from detached membrane, we think is comparatively slight. The introduction of the tube by a really skilled person involves little distress to the patient. I have never actually performed it myself, but only watched its performance on my patients by others. I was therefore in a position to judge. The quiet tranquil breathing through the natural passages, which follows the introduction of the tube, is in marked contrast to the rather distressing breathing after tracheotomy. Any difficulty in feeding has, in my experience, been easily overcome by the lowered position of the child's head. In my personal recollection during the past few years I have had ten cases of intubation with four deaths, two of which were almost hopeless when the operation was performed. My previous records were twelve tracheotomies with nine deaths. My friend, Dr. Armstrong, gives me the following as his record of intubations and tracheotomies performed by himself during the past ten years: thirty-two intubations with seven deaths, twenty tracheotomies with fourteen deaths. Let me emphasize one thing more—the necessity of careful and prolonged previous training, both on the dead body and on animals, of anyone who attempts to do intubation on the sick child. In Montreal we delegate the work to one or two, who in this way perfect their experience. Only by those experienced will the best results be obtained. An inexperienced person attempting to pass a tube on a sick child, in my opinion, will only do harm.

DR. THOMAS EASTES: It is difficult for a meeting to turn its attention from such interesting surgical points as were brought before us at the opening of this discussion to the medical side, but I wish to bring forward the subject of treatment of diphtheria by the specific diphtheria antitoxin. We all know clinically that certain diseases produce an immunity from their recurrence, of longer or shorter duration and more

or less uncertainty. There are some peculiar occasional exceptions which I know no explanation for, such as the return of scarlet fever soon after the primary illness, and the relapses of typhoid. The immunity is due to a material in the blood, a solution of which can be made and preserved, and by this solution immunity can be artificially produced, but we must not expect more than we get in immunity produced in the natural course of the disease. The first cases I saw recorded were published in the epitome of the "*British Medical Journal*," May 5th, 1894, and the percentage of recoveries was shown to diminish every day the treatment was delayed: thus, first day 100 per cent. recovered, second day 97, until the fifth day only 56·5 recovered. In my own four cases, the first was published in the *Journal* for July 21st, and was perfectly successful; the second was a girl of twenty, who had been ill before my first case, and for whom I had tried to procure some antitoxin, but was unable to do so until the seventh day, when she was beginning to improve, and therefore I waited; but by the twenty-first day her improvement was so slow that I injected five cubic centimètres, as my first case had done so well. She was quite well on the twenty-seventh day, but I do not consider the case to prove anything, and only mention it to complete my cases.

My third case was a boy of five years, whom I was asked to treat on the fifth day as he was getting rather seriously ill, and applications to the throat were very irksome to him. I injected five cubic centimètres at once, and all other treatment was stopped. By the next day he was much better, the swelling of the throat having diminished, and by the fourth day (ninth of disease) he was quite well. My fourth case was a girl of twelve, early in the second day of the disease—a well-marked case with swelling, redness, and membrane on both sides. Temperature 99 degrees. I injected 5 cubic centimètres of the antitoxin without any other treatment at all. Next morning the swelling was much diminished and temperature normal: and I have just received a telegram sixty-four hours after injection—"Patient seems quite well; temperature normal; throat clean; swelling much less."

The most marked and earliest effect is the diminution in inflammatory œdema, which may be noticed after a few hours; the membrane may sometimes increase for a time, I am told by others who have used antitoxin successfully. Apparently antitoxin is quite harmless, and solutions that can be procured now may be used in doses of five to twenty cubic centimètres, and repeated if necessary according to the duration of the disease before treatment, and the age of the patient. If there is not some improvement after twenty-four hours, or in severe cases after twelve hours, repeat the dose.

I believe we have now entered upon a new epoch in the treatment of diphtheria, and that bacteriology has again gained another victory over disease by a remedy which in the early stages will be found to be almost perfect.

Dr. W. F. BROOK (Swansea): Whatever difference of opinion may exist as to the respective merits of tracheotomy and intubation in diphtheritic stenosis, I think there can be no doubt that intubation should be adopted

in the great majority of cases of acute non-diphtheritic stenosis, and in a certain class of cases of chronic stenosis of larynx.

During the last four years I have been in the habit of regarding my intubation instruments as equally as essential to the proper dealing with emergencies as my case of catheters. And just as in the great majority of cases of obstruction to the urethra one never dreams of puncturing the bladder before attempting catheterization, so in the vast majority of cases of stenosis of the larynx I attempt intubation before proceeding to tracheotomy.

For acute non-diphtheritic stenosis I have intubated under the following circumstances :—

For œdema glottidis, the result of scald in a child aged two, the tube was dispensed with after two days, and not again required. In another case I failed to get into the larynx on account of the immense swelling of the epiglottis, which projected backwards like a cherry. I was proceeding to tracheotomy when I found that my attempts to intubate had torn the mucous membrane of the epiglottis and caused bleeding, thereby reducing the size and relieving the obstruction. Here the epiglottis was alone œdematous.

Scarification is inadmissible unless one is prepared to follow up immediately with tracheotomy. I know of a case in which tracheotomy was performed at great disadvantage to save a child in whom, after scarification, blood had got into the larynx and completed the obstruction.

For simple laryngitis in infants (in whom the stenosis called for operative interference), I have intubated three times within the last two years.

In one, a child aged eighteen months, the tube was worn for two days and then removed without recurrence of dyspnœa. The inflammation, however, extended down, and the child died a day and a half later from broncho-pneumonia.

In the second case, a boy aged five years, the inflammation remained localized in the larynx. The tube was worn for two days. After removal the dyspnœa gradually returned, and five days later it was necessary to intubate again. The introduction of the tube, about which there was no difficulty, was immediately followed by the coughing up of a few drops of blood and a drop of pus. The following day the tube was removed, and dyspnœa did not again recur. I was not able at any time to obtain a view of the cords, so cannot describe the exact condition.

The third case was one in which laryngitis supervened in the course of broncho-pneumonia in an infant aged four months. The smallest of O'Dwyer's tubes afforded complete relief. It was worn for a day and a half. The child recovered.

In the first and third of these cases my only assistants were the parents or neighbours hastily summoned.

In all these cases tracheotomy must have been performed in the absence of intubation instruments. In none was there any opposition on the part of the relatives to the operation. There was no difficulty in feeding in any of them ; all took their ordinary food, the four months' baby remaining at the breast while the tube was in.

For the following conditions, when I get an opportunity, I intend to use intubation :—

1. In spasm of the glottis from any cause.
2. In bad cases of laryngismus in infants, as the best means of assuring a quiet night to the patient and all concerned.
3. Whenever there is the slightest suspicion of the presence of a foreign body in the trachea. By performing intubation in these, instead of waiting for further evidence of the presence of a foreign body, I am sure many lives would be saved. I know of two cases in which the further evidence took the form of sudden spasm of the glottis. One child died before aid could arrive. In the other, my own case, all attempts at breathing had ceased for three minutes before I arrived. Fortunately, the child was resuscitated after tracheotomy, and a ring of beads hooked up from the bifurcation of the trachea.

For chronic stenosis resulting from ulceration due to the wearing of a tracheotomy tube, intubation is, I believe, the only available method of treatment. I have had experience of five such cases in which it was adopted. Four of them are described in a paper by Mr. Bernard Pitt and myself, which is published in the "Transactions of the Medical Society of London for 1890." In all five it had been impossible to dispense with a tracheotomy tube, which had been worn for periods varying from six months to five years. All were treated by intubation, but not successfully until a thorough exploration had been made, and the cicatricial tissue, which in three cases existed as a complete web across the junction of the larynx and trachea, had been thoroughly dissected away. The after-treatment consisted in passing large-sized intubation tubes, gradually increasing the size, and leaving them *in situ* for periods varying from two or three days to a fortnight. Evidently when the usual means of leaving off a tracheotomy tube have failed, the correct treatment is to explore the parts, thoroughly remove all cicatricial tissue, and close the incision over an intubation tube. Had this been done in these cases the after-treatment would probably have been measured by days instead of months.

In another case of chronic stenosis, which had slowly developed and for which tracheotomy had been performed, having failed to get a view of the child's larynx I intubated, with the result that a papilloma the size of a pea was coughed up through the tube. The instrument had detached it on its way down. I do not suggest intubation as a routine treatment for papilloma, but evidently it may prove useful at times.

A point of no small practical importance in intubation for chronic stenosis is the following. It often happens that it is necessary to exert continuous pressure on the obstruction with the point of the tube before it will give way, so that there is danger of causing asphyxia. This difficulty can be got over by partially withdrawing the obturator, at the same time keeping the tube in place with the finger, and so allowing a small current of air to pass through the tube. Pressure is then again applied, and the stricture generally yields before it is necessary to repeat the manœuvre.

In no case of intubation for non-diphtheritic obstruction, acute or

chronic, have I seen any difficulty in feeding. Pulpy food was generally given for the first day or two, after which ordinary solid diet was given.

After considerable experience in tracheotomy and intubation for diphtheria while house surgeon at St. Thomas's, the West London, and the Children's Hospital, Great Ormond Street, I came to the conclusion that in ordinary cases intubation might well take the place of tracheotomy, but that it should entirely supplement it I do not hold. The lines upon which I now work in private practice are as follows :—I should intubate in all cases except those in which there is extensive deposit of membrane on the palate, tonsils, and pharynx, or in which there is excessive nasal discharge, or in which there is foul ulceration of the palate and tonsils, such as occurs in scarlet fever or when diphtheria complicates scarlet fever.

My experience in about thirty cases is that immediately after introducing the tube a large piece of membrane (sometimes a complete cast of half the trachea) is generally coughed up, either through the tube or bringing the latter up with it. Whenever in the course of the treatment the tube has been coughed up, an interval of an hour or more has elapsed before it has been necessary to replace it.

Although I have seen some fifteen autopsies after intubation I have never seen that extensive destructive ulceration of the larynx which has been described by some. Slight excoriations of mucous membrane opposite the end of the tube and the enlarged part (and, where the string has not been removed, to the left of the epiglottis) are the most I have seen. I cannot help thinking that the cases in which denudation and destruction of cartilages and sloughing of the cords have occurred, were cases in which the virulence of the disease had so reduced the vitality of the tissues that destructive ulceration would have occurred around a tracheotomy tube equally readily ; or else that they were cases in which too large a tube had been used. Nevertheless, in view of the possibility of these injuries, if the tube cannot be left out by the fourth or fifth day I shall be inclined in the future to replace it by a tracheotomy tube.

I generally make a practice of replacing the gag and removing the string after the first fit of coughing incident upon the introduction of the tube is over. The larger percentage of recoveries after intubation as compared with tracheotomy is, I think, due mainly to three factors.

First : The dyspnoea is generally relieved earlier than when tracheotomy is performed, the patient's strength being thereby husbanded to enable him the better to struggle against the disease.

Second : A certain number of lives are saved, which would have been lost simply as the result of prejudice against tracheotomy.

Third : The necessity of giving an anæsthetic is avoided, resulting in a certain saving of life.

Dr. PAGAN LOWE advocated the treatment of diphtheria with local applications of alcohol, which in the form of brandy and water, whisky and water or spirits of wine, in equal parts, forms a suitable, safe, and very convenient method of treatment. To be effectual it must be applied thoroughly. Chloroform even should be administered rather than to fail in thoroughly disinfecting the area affected.

Dr. BENNETT : As the discussion has been confined almost exclusively to diphtheria and acute stenosis, I will merely mention two suggestions made by Mr. Bond, of Leicester, without any comment. Some years ago he introduced a T-shaped tube for stenosis of the trachea. In a recent case of syphilitic stenosis of the glottis he shortened one end of the tube and attached to this an india-rubber tube long enough to pass from an opening in the trachea well into the larynx. When first introduced chloroform was administered, the adhesions separated and the tube introduced. It was found to lie in position without causing any irritation of importance. Subsequently it could be removed and re-introduced with ease. In the future treatment it is proposed that this tube should be introduced by the patient at night or at such intervals as may be required, and a tube without the india-rubber worn during the day-time in order that the patient may speak.

In the treatment of chronic syphilitic stenosis he suggests further that the larynx be opened, the cords separated, some of the fibrous tissue pared off, and skin flaps turned in and fixed so as to form a new coating to the vocal cords.

Intubation in the Treatment of Chronic Stenosis of the Larynx.

By Dr. J. O'DWYER.

The writer proposes, in response to your kind invitation, to briefly set forth his accumulated personal experience in the treatment of chronic stenosis of the larynx by intubation.

In December, 1885, there came to my office a woman with laboured stridulous breathing. She was forty years old, married, the innocent victim of a dissolute husband. The morning of the previous day she had visited a prominent laryngologist of our city (New York), who advised her to have tracheotomy performed before the sun went down. Soon after she met a colleague of the writer, who advised a trial of intubation. So came to me the first case of chronic stenosis ever treated by intubation.

The stricture resulted from the healing of oft repeated tertiary ulceration; the tissue about was dense cicatricial; the aperture scarcely sufficient to admit air enough to allow the patient to move easily about. The stenosis was of two years' standing, and slowly progressive. At this time there was no such thing as an adult intubation tube. I therefore had a set constructed, the largest of which was made in accordance with the measurements of several normal adult larynges, and the smallest of a size that was supposed to be barely sufficient to admit of easy respiration in a state of rest. The gap between these two extremes was filled in with several easily graded sizes. After repeated attempts, it was found impossible to pass the smallest tube of this set through the stricture, and the largest of the croup-tubes was therefore substituted and inserted only after the employment of considerable force. The plan of treatment thereafter was as follows :—The tubes were introduced as in children, by the sense of touch, and allowed to remain in position for several days, when removal was accomplished by the aid of the mirror. A larger size was then immediately inserted, or if too much irritation of the larynx existed,

an interval of one or two days' rest was allowed. Owing to the necessity of having the retaining-swell small to facilitate introduction, the tubes were expelled on several occasions in less than twenty-four hours, when a larger size could always be used without difficulty. Rapid dilatation was accomplished in this manner, so that the patient was allowed to return to her home at the end of eighteen days, with ample breathing room in her larynx. Tubes were inserted nine times, and retained an aggregate of one hundred and seventy-three hours.

In two and a half months the patient returned suffering from dyspnoea almost as bad as before the treatment was begun. The same course was adopted, and after thorough dilatation was accomplished the patient was instructed to return once a week for treatment, the necessity for occasional dilatation extending over a considerable period of time being now apparent. This interval was gradually increased to a month and sometimes to six weeks without any return of the dyspnoea in the interim. In the report of this case before the Laryngological Section of the Ninth International Medical Congress, the following prognosis was given :— "It is now one year and nine months since I began the dilatation of this patient's larynx, and there is scarcely any doubt that it will be necessary to continue it during the rest of her life." About fifteen months after this unfavourable prognosis was given, or three years from the beginning of treatment, the cicatricial tissue lost its power to contract, and the patient has remained now over five years free from any return of the stenosis.

The second case, a woman thirty-five years old, was sent to me in April, 1886, with the diagnosis of incurable bilateral paralysis of the abductors, of syphilitic origin. This patient had been seen by the late Dr. Elsberg and several other laryngologists, who concurred in the above diagnosis. Antisyphilitic treatment, electricity, etc., were tried without result, and tracheotomy was finally resorted to while the patient was unconscious and moribund, the crico-thyroid space having been selected in order to save time.

It was not expected that intubation alone would accomplish any permanent result in a case of this nature, the operation proposed was to remove a portion of one or both cords, and then place a tube in the larynx until the wound thus made had healed. On investigating the case I found that her ability to speak even in the faintest whisper was entirely lost, which proved that no air passed up through the larynx. Neither could a small probe be passed down between the vocal cords, which were closely approximated but otherwise normal in appearance. There was therefore complete occlusion of the larynx between the vocal bands and the external wound, which occurred at some time since the introduction of the canula two years previously. In consequence of this unexpected feature of the case it was decided to break up the adhesions and try intubation alone for a time before resorting to the more radical operation. This was done under ether by enlarging the external wound to admit of the introduction of sounds from below. Entering from above was not considered safe, under the circumstances, owing to the liability of the sound to engage in one of the ventricles. An intubation tube two and a half inches long was then inserted, but the lower end came out

through the wound and no means could be devised to retain it within the trachea. As all the large tubes thus far were made of the same length the tracheal canula was replaced until a tube three inches long could be procured. This was inserted and retained without difficulty. The patient was seated on a chair while an assistant with one hand drew the trachea forward by means of a small retractor inserted into the lower angle of the wound, and with the other hand pressed the tube backward as it passed the opening, using a lead pencil made concave at the end for this purpose. This plan of treatment was not long continued, as the vocal cords dropped together as soon as the tube was removed or expelled, necessitating the immediate introduction of the tracheal canula. The original operation was therefore resorted to, a portion of each cord being removed after enlarging the external wound, and the same tube was replaced. It was removed at the end of a week, and the patient could breathe comfortably through the larynx with the tracheal wound hermetically sealed. A laryngoscopic examination showed the beginning of granulation tissue, which threatened soon to fill the gap made by the excised portions of the cords. This demonstrated the necessity for more lateral pressure, which the intubation tubes were especially constructed to prevent. A tube almost cylindrical in form was therefore procured and placed in the larynx instead of the flat oval one previously used, and the external wound was allowed to close. The patient now felt so comfortable and happy at being able to breathe through the natural passages, and to dispense with her writing pad, that she failed to return for ten months, and then only because of some dyspnœa due to the development of granulation tissue which partially overlapped the proximal aperture of the tube. It required considerable force to remove the tube, which was much eroded and deeply imbedded in the tissues. This patient was kept under observation for four months, during which time several laryngoscopic examinations were made, but no change could be discovered except a gradual reduction and final disappearance of the granulation tissue referred to above. No trace of the vocal cords could be discovered, but a large cylindrical opening replaced the chink of the glottis.

The most remarkable and instructive feature of this case was the existence of distinct motion of the arytenoids during attempts at phonation, which teaches an important lesson in the treatment of bilateral paralysis of the abductors supposed to be incurable.

(For details of these and other cases see "Transactions of the Ninth International Medical Congress," Vol. IV.)

These two illustrative cases, while on the one hand serving as a groundwork for this paper, may on the other be taken as types of two classes of this condition into which, for convenience of description, all cases of chronic stenosis of the larynx requiring intubation may be divided.

First, those for which intubation is resorted to for the twofold purpose of relieving present dyspnœa, and at the same time producing gradual dilatation of the stricture. Second, to get rid of retained tracheal canulæ, the intention being due either to a persistence of the original obstacle to respiration, for the relief of which tracheotomy was performed, or to a

new form of obstruction resulting from the operation and presence of the canula, and subsequent disuse of the larynx, or to a combination of both. As each of these classes of cases presents difficulties more or less peculiar to itself, they will be discussed separately. In cicatricial stenosis of the first class, the chief obstacle to be overcome is the first introduction of a tube of sufficient calibre to admit of free respiration. This having been once accomplished, the subsequent treatment is comparatively easy. The development of cicatricial stenosis is such a peculiarly slow process that the patient gradually becomes accustomed to breathing through a small space, so that when urgent dyspnoea finally supervenes, the lumen of the larynx will be found extremely small, often not larger than that of a crow-quill. Through such a close stricture, composed of unyielding cicatricial tissue, it would be impossible to force even one of the smaller croup-tubes. Either divulsion, internal or external incision must therefore precede intubation in extreme cases of this nature. The length of time that intermittent intubation will be required to effect a permanent cure will be influenced largely by the amount of cicatricial tissue present, and its location. If confined to the chink, a more speedy result may be expected, because of the stretching which is exerted by the expansion of the glottis with every breath. After the normal lumen of the larynx has been restored, or at least ample breathing room secured, a tube should be inserted once or twice a week, and allowed to remain in position from twelve to twenty-four hours. This interval can be gradually increased according to indications, and continued until the tendency to recontraction has been permanently overcome. It is important to remember that the danger of apnoea attending intubation in this class of cases is greater than in croup, owing to the resistance offered by the stricture, and the longer time liable to be consumed in completing the operation. In other forms of chronic stenosis than those due to cicatricial tissue there is little difficulty at the outset of passing tubes of sufficient size to afford ample breathing room, and therefore to dispense with the necessity for frequent intubation.

INTUBATION FOR THE REMOVAL OF RETAINED TRACHEAL CANULÆ.

The difficulty of getting rid of a retained tracheal canula will be influenced to a great extent by the following conditions :—First, and most important, the length of time the canula has been retained. Second, whether there is complete or only partial occlusion ; in other words, whether the respiratory function of the larynx has to some extent been retained, or completely abolished. As a rule, the longer a canula has been worn the more difficult it is to get rid of. The causes for this will be given later.

In recent non-cicatricial cases, such as croup and other acute inflammatory affections of the larynx in which the original cause of the obstruction has disappeared, intubation usually effects a cure very promptly. In the reference already given will be found the report of the case of an adult male, on whom tracheotomy was performed for the relief of dyspnoea due to a subglottic neoplasm. The neoplasm proved to be a mass of fungous granulations which had developed around an impacted foreign

body. These were removed, and the canula was reinserted for a few days, when the wound was allowed to close. As it did so the dyspnœa returned, and a reopening of the trachea became necessary. Some time later the larynx was again laid open, to seek and if possible to remove the cause of the obstruction to respiration, but nothing was found, and the patient continued to wear his canula for three months. At the end of this time an intubation tube was inserted, and worn for one week, which resulted in a permanent cure.

Narrowing of the chink of the glottis from general thickening of the mucous membrane, with partial ankylosis of the arytenoids from disuse of the larynx, was probably the principal cause of the retention of the canula in this case, as it undoubtedly is in many of the cases following tracheotomy for croup and other self-limited diseases, in which the obstruction to respiration persists after the original cause has disappeared.

In the course of time, other changes of a more serious and permanent character are superadded.

The following quotation from the first edition of "Holmes' System of Surgery," Vol. XI., p. 316, has an important bearing on this subject :—
 "When the tube has been worn for a considerable time, the cavity of the larynx becomes so much contracted that it is necessary in many cases, if not in all, for respiration to be carried on through the artificial opening. In the museum of St. Bartholomew's Hospital may be seen the larynx and trachea of a man on whom the operation of tracheotomy was performed twelve years before death; the patient continuing to the time of his death to breathe through a canula passed through the opening made in the operation. The orifice in the trachea is situated immediately below the cricoid cartilage. The rima glottidis is almost closed by the thickening and contraction of the mucous membrane lining the larynx. The chordæ vocales are also so much shortened that the arytenoid cartilages are within a quarter of an inch of the angle of the thyroid cartilage."

Notwithstanding the teaching of physiology as to the central origin of the respiratory movements of the glottis, the clinical fact remains that when respiration is carried on exclusively through an artificial opening, if these movements do not cease altogether, they are at least too slight to prevent ankylosis of the arytenoids, which is necessarily followed by atrophy of the posticus muscles. With the smallest possible opening in the glottis the ability to speak, or at least to whisper distinctly, is retained, but the air necessary for this purpose is supplied through the canula. The vocal function of the larynx being thus retained and frequently used while its respiratory function is practically abolished, it follows that the adductor muscles must soon get the better of their antagonists, and gradually draw the cords closer until the chink is finally obliterated. This is what actually occurs, and whether the respiratory movements of the glottis are wholly of central origin, or partly central and partly reflex, or whether the interference with these movements under the circumstances mentioned is due to some inhibitory influence on the respiratory apparatus resulting from deflecting the current of air through an unnatural channel, are matters of no practical importance. When the vocal bands are in actual

contact, which occurs more rapidly in children owing to the very small space that normally exists between these ligaments while in a state of rest, it is very apt to be mistaken for bilateral abductor paralysis, and with injurious results. This happened about six years ago, in the case of a boy twelve years old, who was sent to me from a distant city for advice in regard to a retained canula that had been inserted for the relief of croup one year previously. The vocal cords were very close together and immovable, but not in actual contact throughout. There was room enough to allow him to breathe for a minute or two with the canula closed. Intubation was recommended, and a speedy cure predicted provided no other obstruction existed below the chink. Before submitting to the operation, the father of this patient consulted a prominent laryngologist, who pronounced the case one of double posticus paralysis, and consequently not amenable to any mechanical method of treatment. As a result of this erroneous diagnosis this boy still continues to wear his canula, now seven years. Even a slight amount of daily practice of the respiratory function of the glottis through ever so small a space renders the prognosis, as regards speedy cure, much more favourable, because the nutrition of the abductor muscles is thus to some extent maintained, and complete ankylosis of the arytenoids prevented. Enforced inactivity of these little articulations is more disastrous in its results than it would be to any other joint, owing to the fact that in the normal condition they never rest, day or night, during the whole course of life.

In addition to the form of obstruction just described, there is another of later development and of more serious import. It is a stricture which develops at the upper angle of the wound as the direct result of the long-continued irritation of the canula, and is found in a large proportion of the cases, especially in young subjects and when the operation is high, involving the cricoid cartilage or its immediate vicinity. This stricture is composed largely of cicatricial tissue, and requires intubation extending over a considerable period of time to effect a cure. When the wound is still higher, that is, wholly within the larynx, complete occlusion with adhesion of the vocal cords is very liable to occur, as in the second case reported above. It is in fact a combination of the two secondary forms of stenosis previously described, with the binding together of the cords superadded. Owing to the complete suspension of all the important functions of the larynx, these are the most difficult of all classes to cure.

In a case of this nature in a boy eight years old, in whom a canula had been inserted in the crico-thyroid space for the relief of croup eight months before he came under my observation, continuous intubation for over three months was required before the vocal cords would remain sufficiently separated without the tube to permit of respiration through the larynx for even half an hour at a time. Granulation tissue springing from the lateral aspects of the base of the epiglottis, above the level of the ventricular bands corresponding to the points of greatest pressure in the vestibule of the larynx, was a source of considerable trouble in this case. It originated from leaving a metallic tube continuously in the larynx for four weeks. This difficulty can always be avoided by removing the tube once a week, and occasionally changing the size or shape of the

head or shoulder of the tube, so as to prevent erosion of the mucous membrane at any one point from long-continued pressure. Granulation tissue developing in the neighbourhood of a tracheal wound is not of serious consequence; it usually promptly disappears after the removal of the cause, aided by the pressure of an intubation tube.

In adults intubation can be accomplished, as a rule, with greater ease by using the mirror as a guide than by the sense of touch, which is the only means available in young children; in fact, it is the only method practicable in a certain proportion of the cases wearing tracheal canulae, owing to the deeper situation of the larynx under these circumstances, which sometimes places it beyond the reach of the finger. In three adult males of this class, the most I could do was to touch the tip of the epiglottis, without any power to control it. In two of these cases intubation was performed by the aid of the mirror, and in the other without any guide whatever except keeping the tube directly in the middle line. As soon as the tube has been inserted as far as the short curve on the introducer permits, the mirror must be dropped, and the finger quickly inserted to carry it well home, until the retaining swell has passed beyond the stricture. Considerable force is sometimes necessary at this juncture, and the finger will be found too short to follow the larynx, which recedes under the pressure. To supplement the finger under these circumstances I have used a small steel sound, with a shoulder a short distance from the tip. The extremity of the sound engages in the aperture of the tube, which prevents slipping, while the shoulder prevents it from entering too far.

Metallic tubes should not be allowed to remain continuously in the larynx for much longer than a week, owing to the irritation produced by the calcareous deposits which always occur on the outside to a greater or less extent. This deposit does not take place on vulcanite tubes, which are therefore to be preferred because they may be allowed to remain in position almost indefinitely without serious consequences. Small tubes cannot be made of hard rubber on account of the great thickness of the walls necessary for safety, which must be at the expense of the lumen.

With the simplest precautions there is practically no danger while wearing an intubation tube of sufficient calibre in uncomplicated cases of chronic stenosis. The patient should be instructed to clear the tube by coughing, whenever secretions are found to be accumulating. In the early stage of treatment, while using tubes of small calibre the thread should always be left attached, in order to guard against any possible danger from the tenacious secretions which are thrown out immediately after the introduction of the tube. The inhalation of steam is very grateful to the patient, and aids in liquefying the mucus. In practising intubation for the removal of a tracheal canula, the wound under all circumstances must be kept open until sufficient breathing-room through the natural passage has been secured to sustain life, in case the tube should be coughed out. This is, as a rule, extremely difficult to accomplish, especially in children. The hard rubber plug devised by Drs. Pitts and Brook, and used in a series of cases, appears to be the most practicable for this purpose. It is provided with a collar similar to that on a tracheal canula, by which it can be held in position.

In adults, when the opening is well in the trachea, the best plan is to wear a small tracheal canula, corked together with the intubation tube, for which there is plenty of room. In one case I was obliged to resort to this method, and permit the patient to respire through both channels, because the tube in the larynx was too small for comfortable breathing. In the beginning, adults experience the same difficulty in swallowing after intubation, whether for acute or chronic stenosis, that is found in children after this operation for croup. (This subject will be more fully discussed by my colleague Dr. Northrup.) When continuous intubation for a considerable period of time is required, the ability to swallow almost perfectly is soon acquired, which proves that the epiglottis alone, unaided by its constrictor muscles, can protect the vital opening in the glottis, the action of the latter being nullified by the presence of the tube. Conversely, it has often been demonstrated that deglutition can be performed perfectly after complete destruction of the epiglottis. In either case some time is required to educate, so to speak, either of these safeguards to assume the duties of both, in excluding foreign substances from the air-passages. For this reason the ability to swallow well is seldom acquired after intubation for croup, because of the short time the tube is usually worn.

With the Casselberry method of feeding, which is more practicable in adults than in children, there will be little difficulty in tiding over the early period of treatment in chronic stenosis, or until the epiglottis has learned to do double duty.

The set of adult chronic stenosis tubes here shown was developed almost exclusively from the experience derived from the two cases reported in the beginning of this paper. It consists of ten tubes, an introducer and extractor. The smaller sizes can be used in any form of acute stenosis during the years of adolescence, for which period of life no provision has been made in the set of croup tubes. Owing to the small size of the heads, they are not safe without the string in any form of stenosis in adults, except the cicatricial. No set of tubes can be devised that will suit all the various distortions of the larynx that are sometimes found in long-standing cases of chronic stenosis. Special tubes will, therefore, have to be constructed to meet such indications.

Bibliography of Intubation in Chronic Stenosis of the Larynx.

- "Transactions Ninth International Medical Congress," Vol. IV.
- "Tenth " " " " " " IV.
- "New York Medical Record," June 5th, 1886.
- "Philadelphia Medical and Surgical Reporter," May 14th, 1887.
- "New York Medical Journal," March 10th, 1888.
- " " " " February 22nd, 1890.
- " " " " December 9th, 1893.
- " " " " October 28th, 1893.
- " " " " December 31st, 1892.
- " " " " December 9th, 1893.
- "Deutsche Medicinische Wochenschrift," Leipzig, August 31st, 1893.
- "Journal of the American Medical Association," October 22nd, 1892.

- "Journal of the American Medical Association," May 3rd, 1890.
- "Journal of the Respiratory Organs," February, 1890.
- "Louisville Medical Journal," March, 1894.
- "The American Practitioner and News," September 9th, 1893.
- "Buffalo Medical and Surgical Journal," July, 1891.
- "Boston Medical and Surgical Journal," July 7th, 1892.
- "Transactions of the London Medical Society," 1892.
- "La Semaine Medicale," May 6th, 1891.
- "Revue de Laryngologie, d'Otologie, et de Rhinologie," Paris, July 15th, 1891; October, 1891; November 1st, 1892.
- "Archives Internationales de Laryngologie, d'Otologie, Rhinologie," November and December, 1892.
- "El Progreso Ginecol. y Pediatría," Valencia, May and June, 1893.
- "Bolletina della Paliambulanza di Milano," May and June, 1892.
- "Separat Abdruck aus der Monatsschrift für Ohrenheilkunde," No. 1, 1892.
- London "Lancet," January 23rd, 1892.
- "Annual of the Universal Medical Sciences," 1892, 1893 and 1894, Vols. IV.
- "Archiv für Kinderheilkunde," Vol. XV. 5 and 6, 334-93.
- "Schmidt's Jahrbucher," January 10th, 1894.
- "Louisville Medical Monthly," March, 1894.

Laryngeal Paralysis in Chronic Nervous Disease. By W. PERMEWAN, M.D. (Lond.), F.R.C.S.

That the bulb is often affected in locomotor ataxy has been known pathologically for some time to nervous physicians; it is to be hoped that in the future that relation will also be recognized clinically, and that physicians will look to the larynx, where the effects of bulbar damage are most easily to be seen. There is one disease, however, which is much more common than tabes, but allied to it in causation, symptoms, and pathology, the connection of which with laryngeal paralyses has not been fully or systematically investigated—viz., general paralysis of the insane. Of the cases of tabes recorded by Barger in his well-known monograph, it is noteworthy that a considerable proportion were affected either simultaneously or subsequently by general paralysis of the insane, and he quotes several suggestive remarks by various authorities on the relation between these two affections.

The author examined laryngoscopically thirty-four cases of general paralysis in the County Asylum, Rainhill; of these only three were in the well-marked third stage, nine were in the first stage, while the remaining twenty-two were in the varying periods of the second stage, including several said by the medical officers to be in the transition period between the first and second, and second and third stages.

The results were as follows:—

1. *Character of the Voice.*—In some cases it was notably high-pitched and monotonous, "sing-song" it might be called; in others it was quite normal. In only one case, where there was almost complete paralysis of one vocal cord, was any characteristic quality noted.

2. *Sensibility of Pharynx and Larynx.*—In the early stages mostly normal, but in nearly all the second and third stage cases it was notably diminished. In two cases there was hyper-sensitiveness of the pharynx.

3. *Paralysis of Palate*.—In only two cases was there any want of power, one with a normal larynx, the other combined with bilateral abductor paralysis of the larynx.

4. *Laryngeal Paralysis*.—In seven there was more or less disturbance of laryngeal movement, viz. :—

Case 4. E. H., male, aged thirty-nine, stage three. Pupils unequal, inactive to light ; knee-jerk exaggerated ; epiglottis very erect ; adduction of cords perfect, but paresis of abductors.

Case 7. Thos. H., aged forty, stage two. Pupils inactive to light ; knee-jerks normal. Palate moves well. Abductor paresis of both cords. They move outwards only slightly beyond cadaveric position ; on forced inspiration they move inwards.

Case 10. Thos. H., aged thirty-seven, stage two. Pupils inactive ; knee-jerks exaggerated. No paralysis of palate. Abductor paresis of right cord.

Case 17. Christopher C., aged forty-five, stages two and three. Duration of disease two to three years. Pharynx rather insensitive ; palate normal ; cords do not abduct fully ; some paresis of abductors. Adduction normal.

Case 27. Ed. Q. Pupils active ; knee-jerks normal. Palate does not move well. Both cords in the middle position—do not abduct on inspiration ; bilateral abductor paralysis. They adduct well. Voice not notably altered. Epiglottis flaps to and fro during inspiration.

Case 32. Richard K., early stage two. Pupils sluggish ; knee-jerk weak. Cords do not fully abduct. Adduction good.

Case 34. John H., late stage two. Formerly a good tenor singer, but during preceding twelve months has lost vocal power, and now sings in a weak and toneless voice. No paralysis of palate. Paralysis of left cord almost complete, does not reach the middle line in phonating ; right cord passes across middle line, but does not meet left one completely. No local cause discoverable for paralysis of left cord.

In all cases where signs of paralysis were noted, repeated examinations were made, and in all cases confirmed by the opinion of Dr. Wood, the Medical Superintendent of Rainhill Asylum.

The author arrives at the following conclusions :—

1. That the larynx is not unfrequently affected in general paralysis of the insane ;
2. That this affects first and chiefly the abductors ;
3. That this does not necessarily depend on the association of tabes dorsalis with the more generalized disease, but is the direct result of the degenerative and inflammatory changes which affect the central nervous system in general paralysis.

Disseminated Sclerosis.—In two cases examined the laryngeal muscles were unaffected.

Bulbar Paralysis.—The author lately examined one case in which he was able to watch the onset of abductor paralysis becoming absolutely complete, and the supervention on it of affection of the adductors. The other usual symptoms of bulbar paralysis were present in a marked degree.

Dr. FELIX SEMON (London) congratulated Dr. Pernewan upon his paper, which broke quite new ground, and expressed his gratification that

his investigations had so fully corroborated the law of the particular susceptibility of the abductors of the vocal cords to succumb to organic disease.

Turbinal Varix. By WYATT WINGRAVE, M.R.C.S.

Turbinal varix may be defined as a particular form of hypertrophy which involves the posterior half of the inferior turbinated body, and characterized by a permanent distension of the venous sinuses.

Morbid Anatomy and Pathology.—It is expedient to classify the varieties of hypertrophic rhinitis according to the predominating morbid changes. These in their order of frequency are—1. vascular; 2. mucoid; 3. lymphoid; 4. glandular. In the simple and temporary cases all these features are present, and it is only in cases of a chronic or permanent character that certain features predominate, and readily determine their nature on histological examination. It is to the special form of the vascular group that the author invites attention in this paper. Although this variety occurs occasionally in the middle turbinal, and even in the septum, it will be found to constitute a disease almost peculiar to the inferior turbinal itself, owing to its peculiar structure. Thus serial section cutting shows that, whilst the smooth anterior region is characterized for the most part by the presence of glandular and lymphoid structure, the wrinkled posterior part is mainly occupied by cavernous vascular spaces lined by epithelioid plates.

These vascular channels, the "Schwellkorpe" of Zuckerkandl, are surrounded by several layers of visceral muscle fibres. Many writers seem to have ignored these muscle fibres entirely. Thus even so high an authority as Greville Macdonald describes the venous sinuses as (1) "consisting of a thin layer of connective tissue, apparently not elastic, and lined with endothelium." He further states that he failed to find muscular fibres in the trabeculae. This oversight is probably explained by the fact that specimens were examined whose walls were already the seat of morbid changes.

Your attention is specially directed to these muscular fibres, because in their morbid conditions is to be found an interpretation of the pathology of one form of turbinal disease.

Owing to the courtesy of my colleague, Mr. Carmalt Jones, an abundant supply of material has afforded me an opportunity of tracing the varying degrees of degeneration which this erectile tissue undergoes, and the conditions were so constant in their appearance as to justify the view of a more than merely coincidental connection.

The peculiar villous or brain-like macroscopic appearance of the surface was seen microscopically to correspond with a cystic invagination of the surface epithelium, covering distended loops of vessels with very thin walls, imbedded in mucoid tissue—that is connective tissue in which the matrix mucin was in excess of the fibrois reticulum and cells. The muscular walls of the vascular sinuses presented well-marked atrophy and degeneration, varying from simple thinning to complete disappearance, owing to the fibres apparently sharing the surrounding mucoid changes. In places this intervening mucoid tissue simply

formed their boundaries, whilst in other parts the walls seemed to have undergone fibrotic changes. This condition is therefore not a mere hypertrophy of the structures, but consists of a true degeneration and infiltration of the walls of these vascular spaces, for the walls gradually losing their power of *active* recoil, the vessels by degrees become more and more distended, and a permanent enlargement ensues, which is in fact a varix.

Etiology.—These degenerative changes, which develop so gradually, are probably due to some tropho-neurotic influences, local or general, and excessive erectile activity of the parts must play an important rôle. Unhygienic conditions of living, by keeping up a constant irritation, hereditary tendency, often associated with a highly emotional temperament, and the male sex, are important predisposing factors, as well as all conditions in which the venous flow is interfered with (hepatic cirrhosis, gout, pulmonary and cardiac diseases, etc.).

Symptoms.—The most notable are chronic nasal stenosis, parosmia, a slimy sanguinolent discharge, occasional epistaxis, and either painful tenesmus of the faucial and pharyngeal muscles or paresis of the palate.

Diagnosis.—If seen from the front, a dull red purple mass may be found at a varying depth, in one or both sides, which does not shrink much under cocaine, but readily yields to the probe, and does not change its position on forcible respiration. Posterior rhinoscopy will reveal a red or purple brain-like mass projecting into the post-nasal space on one or both sides.

In all instances, however, digital examination will at once afford by far the most reliable and available evidence. A soft resilient yet sharply circumscribed mass will be felt on each side of the nasal septum, free all round except at its attachment to the inferior turbinal bone.

Treatment.—This will be palliative and radical. Palliative remedies such as alkaline and astringent douches, with general depletion, can only afford temporary relief, and must only be considered as preliminaries to a more thorough and permanent treatment, by removal of the obstructions in the anterior regions of the nostrils, afterwards treating the varix itself.

Direct treatment will be determined by the size of the varix, its duration, and its response to the action of cocaine. If it contracts under cocaine the galvano-cautery or fused chromic acid will afford relief. But when the swelling is large and does not shrink under cocaine, caustics are absolutely useless and complete removal is necessary. This may be effected either with a snare or by means of a cutting instrument. Of the former we may use Krause's snare when only soft structures are to be removed, and Jarvis' or Wilkin's where it is decided to include the bone. But by far the most satisfactory results, as far as complete enucleation is concerned, are to be obtained by the ring or draw-knife as introduced by Spencer Watson, and greatly improved by Carmalt Jones. It is introduced, after cleansing the nostrils with an antiseptic douche, until the varicose posterior extremity is engaged in the ring, and then it is sharply but firmly withdrawn, cutting its way through the turbinal body. Bleeding is easily controlled by tannin and lint plugs and these should be followed by plugs of boric lint firmly packed in, and

left for twelve or twenty-four hours, absolute rest in the recumbent position being insisted upon. The plugs are then removed and the nostrils gently cleansed with Dobell's solution.

Two important complications must be guarded against—viz., septic changes and secondary hæmorrhage.

Results.—Having personally investigated the subsequent history of over two hundred cases of turbinations at the Central London Hospital, some of which were operated upon as far back as three years, none of the evils that have been advanced as likely to occur have arisen.

DISCUSSION.

Dr. FELIX SEMON (London) expressed his surprise that so large a number of these operations should have been necessary within, comparatively speaking, so short a time, and took this observation as the starting-point of some general remarks on the desirability of avoiding operative hyper-activity in connection with theories which often enough did not stand the test of time.

Dr. SCANES SPICER had been in the habit of removing vascular growths from the lower turbinated body, but usually without including any of the bones. His practice was to use the cold snare, and he rather dreaded severe hæmorrhage from the use of the cautery knife. He did not hesitate to operate on the nasal cavity whenever there were symptoms of obstruction or irritation.

Dr. DUNDAS GRANT had used the cutting ring-knife in a number of cases, with excellent results. He frequently used the snare, but for these posterior hypertrophies he found the ring-knife more applicable, as he thought cocaine undesirable, and preferred to operate under nitrous-oxide gas, the instrument permitting of the rapidity that nitrous-oxide required.

Dr. WILLIAM HILL did not consider that two hundred cases of moriform growths in three years at the Central London Hospital was greater in proportion to the number of cases met with in the combined clinics of himself and Dr. Spicer.

Dr. GREVILLE MACDONALD thought many specialists were too anxious to produce an artistically correct condition of the nose, irrespective of symptoms, yet at the same time he was bound to confess that he numbered among his most successful cases those where chronic laryngitis was ameliorated by restoring nasal respiration. Yet it was always to be remembered that whereas nasal obstruction was of no moment whatever to one individual, it became very serious to another. He thought that the only nasal reflexes to be seriously considered were the physiological, *e.g.*, sneezing, etc., though perhaps the cure of asthma by correcting nasal abnormalities, one of the most striking instances of the success of rhinology, ought to be included. He believed that although all such cases were built upon a neurotic basis, yet the treatment of slight nasal obstruction, which in the non-neurotic were of no importance, did more for the patient than the physician could accomplish. Finally, he objected to complete removal of the inferior turbinated bodies, holding that these structures were of great physiological importance.

Dr. MILLIGAN (Manchester) said that during the last four years he had only seen two cases of turbinal varix necessitating the performance of such an operation as Mr. Wingrave had just described. He was at a loss to explain the great discrepancy between his observations and those of some of the previous speakers. He saw many cases of slight hypertrophy of the posterior ends of the inferior turbinals, but local treatment generally sufficed to relieve.

Mr. WINGRAVE, in reply to the observations that had been made, said that whilst sharing Dr. Felix Semon's depreciation of indiscriminate and wholesale operations on the nose for obscure and purely subjective symptoms, he protested against such an interpretation being applied to the conditions of this particular disease, for the indications were not imaginary but real, obvious to the surgeon, and due to mechanical causes. He replied severally to other points alluded to in the course of the discussion.

Coryza Caseosa. By P. McBRIDE, M.D., F.R.C.P.E., F.R.S.E.

In May, 1892, I was consulted by a gentleman seventy-three years of age, whose case presented the following points of interest. He had been aware of a certain stuffiness in the right nostril since the autumn of the preceding year. The nasal obstruction became worse after influenza in November, 1891. Examination of the anterior nares revealed nothing of importance on the left side. The right nostril, however, showed an irregular warty-looking mass with a good deal of inspissated pus lying about, and a marked tendency to bleed on touching it with a probe. In my notes I find it recorded that the right choana, when examined with the rhinoscopic mirror, seemed to be blocked by an angry red mass dotted here and there with pus.

The teeth were perfect; there was no history of pain, but slight enlargement of the nose on the affected side was noted. There were no enlarged glands anywhere. There was, however, a certain amount of fetor. My provisional diagnosis was that probably malignant disease existed, but that possibly inflammation might account for the condition. I, however, in writing to Dr. McDougall, of Coldingham, the patient's medical adviser, expressed my fears as to malignancy, but removed a portion of the growth for microscopic examination. Mr. Alexis Thomson very kindly cut sections, and gave his opinion most decidedly that the neoplasm was inflammatory, an opinion which was corroborated by Mr. Stiles.

From the clinical aspect of the case, certainly this seemed unlikely, but on the strength of the favourable report I proceeded on the 13th June, in the presence of Dr. McDougall, to remove the tumour. At first the presenting growth was snared off, and it was a somewhat noteworthy fact that this did not seem to have increased in size during the month that intervened between the patient's first and second visits. After this had been removed, a sloughy-looking mass remained, which could be taken away with the wire loop. It turned out to be a putty-like substance, having an almost fecal odour. As much of this *débris* was removed as possible, but masses were still visible high up in the nostril.

I suggested the employment of a spray of soda, borax and carbolic under the direction of Dr. McDougall. Under this treatment absolute recovery seems to have occurred. The patient has been unable to be in Edinburgh since, but Dr. McDougall, writing in February, 1893, says, "The deformity, which was very marked, has now entirely disappeared. The copious offensive watery and purulent discharge, which was such an annoyance to the patient and his friends, is quite gone. The nostril is in every respect natural, and, so far as my examination with an ordinary nasal speculum and lamp-light can assist me, there does not appear to be the slightest trace of any abnormality of the nose remaining."

It will be observed that Dr. McDougall considered the external deformity of the nose more marked than I did, and there can be no doubt that on this point he was better able to judge, as he was intimately acquainted with the patient, while I saw him only twice.

On the 8th May in this year there came under my care H. C., an unmarried cook of thirty-six. Her chief complaints were: (1) pain on the left side of nose, worse at night; (2) swelling of the left side of face, which was noticeable on inspection, under the eye and at the side of the nose—extending to the malar region; (3) headache, frontal and occipital; (4) discharge of matter from left nostril, worse on lying down; (5) watering of the left eye.

Three and a half years ago the patient had an attack of influenza, and then suffered from a pain over the bridge of the nose, which continued for some months; there was, however, no other local complaint, and H. C. had no further trouble until the middle of April last, when she began to have pain over the whole left side of the head and nose. The pain was least when going about, aggravated by stooping and in bed. There were some bad teeth and these were removed, but no benefit followed. When I first examined the patient, on the 7th May, I found a reddish-pink mass of firm consistence blocking the left nostril; it was surrounded at its margins by greenish-yellow-looking matter. The growth seemed attached to the inferior turbinated body, and a portion of it was extracted. After this masses of greenish-yellow, solid cheese-like material, with a foul and faecal odour, came away. Some of this was kindly examined by Dr. Muir, who reported: "The material taken from the nose shows broken-down cells, chiefly pus corpuscles, a large amount of granular debris and enormous masses of bacteria of various kinds. I examined carefully for tubercle bacilli, but could find no trace of such."

The use of a syringe brought away some more of the caseous substance. On the 9th May I again operated, removing with the electric cautery a mass of tissue about as large as a hazel nut from the left (inferior?) turbinated body. This was followed by the escape of a large quantity of very fetid cheesy matter, the main masses having the shape of very large almonds, and being manifestly casts of the nasal passages. Posterior rhinoscopy showed the presence of some muco-purulent substance in the left choana. The patient's nostril was now sprayed with a solution of bicarbonate of soda, and a considerable quantity of inspissated matter cleared away.

On the 11th May the patient felt very much better. There is seldom

pain, swelling has almost entirely disappeared, and the eye has ceased to water. On examining the nose on the 12th May, hypertrophy of the mucosa covering the inferior turbinated was noticed far back. On the 20th June examination showed the middle turbinated mucosa to be thickened and almost pendulous, while below it there inclines to form a hard crust of secretion, which, however, has no odour. I may add that on the 17th June I washed out the left antrum with a Lichtwitz's canula, in order to exclude an empyema, and that the fluid (boracic) flowed off by the nostril quite clear.

On the 8th June Dr. Muir reported as follows on a portion of the polypoid mass removed:—

"Tissue is chiefly cellular, and is composed in great part of numerous thin-walled vessels and capillaries, with abundant accumulations of leucocytes between. There is, however, some myxomatous tissue under the epithelium covering it, and from the general appearance I think it is a myxoma or myxo-fibroma which has been in a state of inflammation for a long time, the inflammatory process having obscured its structure. It is covered on the surface by the deep layers of stratified epithelium, except at some places where there is ulceration."

Another portion of the cheesy material was also examined by Dr. Muir, who reported: "I could find no cholestearin, but there are numerous small needle-like crystals(?) of fatty acids, and there are small granules and globules which give the fat reaction with osmic acid; otherwise the structure is as before—broken-down leucocytes and masses of bacteria."

On the 11th June Dr. Noel Paton, at Dr. Muir's request, kindly reported as follows: "I extracted with alcohol and ether, and filtered hot. On evaporation hardly any residue was left. This consisted chiefly of cholestearin. Fats and fatty acids are present only in very small amount, if at all."

On the 14th June Dr. Noel Paton writes: "By saponifying the alcoholic extract from the cholestearin I was able to get undoubted traces of fatty acids. These may have been free or combined with glycerine."

I may say that this case is still under observation, and I may possibly have something further to add.

Before seeing either of those typical cases I had in the spring of 1892 seen a patient, in consultation with Dr. Whitelaw, who gave the following history: In December, 1891, he had toothache and swelling of the face, followed by a nasal discharge. In April, 1892, his complaints were of nasal discharge and stuffing of the left nostril, the former being more marked in the morning. On examination a polypoid growth was found in the left nostril springing from the anterior part of the middle turbinated body. This was removed and afterwards about a teaspoonful of curdy pus came away. I advised the use of a spray, and on the 7th June saw the patient again. There was then found diffuse thickening of the mucosa in the region of the middle turbinated body, and on pressing this aside curdy purulent masses were seen. Illumination gave no translucence on either side. On the 6th July the discharge was greatly reduced, but still reappeared on sitting with the head down. The symptoms seem to have

become less and less, and in February, 1893, Dr. Whitelaw reported the nostril to be quite normal.

I have recorded these cases because, whatever interpretation we may put upon them, they illustrate a clinical type of rare occurrence. Obviously the last and at the same time least characteristic presented many features which would make one incline to classify it as a latent empyema of the antrum, and I am even now by no means sure that it was not. Only if it was it ran a most anomalous course, and its spontaneous cure also seems to militate against this view. In my second case the antrum has been proved free from disease, but it is still conceivable that the secretion may have flowed from the frontal, ethmoidal, or sphenoidal cells, and have afterwards become inspissated. I do not, however, think this probable. In my first example, too, the whole course of the affection militates against the view of any accessory cavity disease. It seems to me very improbable that fluid pus flowing into the nostrils should be there retained long enough to permit of its drying up into such cheesy masses as have been described. I do not think either that the hypothesis of degenerated nasal polypi can very well be upheld.

It seems to me that the first two cases, at least, must be classed as examples of coryza caseosa. The earliest description of this affection with which I am acquainted is that by Duplay and Föllin. ("Pathologie Externe," vol. iii., p. 806.) These authors define the affection as "an accumulation within the nasal cavities of a cheesy substance analogous to that contained in certain sebaceous cysts, which may form in sufficient quantity to deform the face and lead to loss of smell." They also refer to observations by Maisonneuve, Verneuil, Guyon, and Reverdin.

In Verneuil's case, however, the cheesy masses seem to have resulted from the presence of a nasal calculus, and therefore cannot be considered as illustrating the occurrence of coryza caseosa as a distinct clinical entity.

Nélaton also endorses Duplay's description ("Pathologie Chirurgicales," vol. iii., pp. 717, 718), and confirms the existence of cheesy rhinitis as an independent affection. Among specialists, Cozzolino ("Bol. delle Malattie dell'Orecchio," etc., 1884; "Annales des Maladies de l'Oreille," etc., 1889, p. 645) was the first authority who called attention to the affection, and he has since elaborated his observations, although in all he has only met with three cases. In the last of these he made a careful examination of the caseous matter, and found (1) fatty material with crystals of margarine and stearin; (2) epithelial cells; (3) circular black bodies (*aspergillus niger*); (4) white corpuscles; (5) microbes. Cozzolino now proposes to apply the term cholesteatomatous rhinitis to the affection. Beausoleil ("Revue de Laryngologie," etc., April 15th, 1893) briefly refers to two cases he has met with; according to the short description, where I gather that in both there were polypoid projections from the middle turbinated body, and in one the diagnosis pointed to empyema of the antrum, these examples thus proving a very marked parallel to the cases I have recorded here.

In addition to these observations, Strazza ("Bol. delle Malattie dell'Orecchio," vol. ix.; "Annales des Mal. de l'Oreille," etc., vol. xvii,

1891) and Neumann ("Virchow's Archiv," vol. v., 132) have recorded cases, in both of which masses of cheesy *débris* were found. In both a complete cure seems to have followed removal of the caseous material. In Strazza's case microscopic examination showed the foreign substance to be composed of epithelial cells, undergoing fatty degeneration, and white corpuscles which stained with osmic acid. Neumann states that he found the substance removed by him to consist altogether of cholestearin.

I am unwilling, gentlemen, to take up more time than I can help. Besides, I do not know that any great value attaches to speculation and hypothesis. My cases—at least, the first—certainly correspond in their clinical features with the affection as it is described by the majority of the authors quoted. Neumann's case certainly seems unique, if indeed the mass consisted of cholestearin only. In that case it would form an analogy to certain cases of biliary calculi.

I may add that I think the history of my cases negatives the idea of any foreign body having been introduced, nor was any such substance detected.

Typhoid Fever of a Peculiarly Virulent Type communicated by the Breath. By P. WATSON WILLIAMS, M.D. (London).

I record these five cases of typhoid fever from a single source, mainly in order to invite attention to some special points of interest, and more especially as tending to prove that typhoid fever may be communicated by the breath or expectoration of infected persons.

Though only one of these cases was under my care, I think it will simplify matters and render the course of events more appreciable if I relate the cases in the order in which they occurred, and not in the order in which they came under my notice.

The first case, Ernest S., aged twenty, a painter, began to feel ill on February 9th, with headache and general malaise, and on the 15th was admitted to the Bristol Royal Infirmary, under Dr. Prowse. Shortly after admission the temperature was 104.6 F.; he was drowsy, and complained of severe backache. There were several typhoid spots on the abdomen, and his spleen was enlarged.

On February 18th the case was notified as typhoid fever.

On February 20th the patient's symptoms had become more aggravated; he was delirious, and continually trying to get out of bed.

On February 24th, the estimated seventeenth day, the morning temperature began to remit, but he was still delirious. For some days there had been a good deal of laryngeal and bronchial catarrh, and the patient was constantly coughing and expectorating about the bed. He began to improve, and

By February 28th the condition of the patient was considerably better, the temperature had fallen by lysis, and on this day reached the normal, but later in the afternoon he began to have a relapse.

On March 7th, seven days later, he developed fresh typhoid spots, and the temperature reached 103°. There was now discharge of pus from his right ear, and epistaxis had occurred on two occasions.

March 10th: Symptoms of acute laryngitis, with some giottic

obstruction, came on in the evening. A steam bed relieved him considerably, but in a few hours he became more cyanosed, and he died suddenly, it was supposed, from cardiac failure.

Post-mortem examination showed all the typical lesions of enteric fever, typhoid ulcers in the intestines, enlarged spleen, etc., but the lungs were extremely congested, and the lower lobes of both lungs consolidated.

The foramen ovale was patent, with a valve-like opening.

In the larynx, the epiglottis and ary-epiglottic folds were œdematous, the ventricular bands were ulcerated extensively, yellow and sloughy. The right vocal cord had an ulcer on the vocal process, with an area of congestion all round.

On making inquiries as to the possible source of the infection of this case, Dr. Davies, Medical Officer of Health, informed me that the inspector visited the boy's home on the 19th February, and reported that there was no evidence of the source of contagion.

Cases 2 and 3. Brothers of Ernest S., and aged five and eight respectively, were notified as suffering from enteric fever at their home on the 28th February—*i.e.*, thirteen days after their elder brother was removed to the Royal Infirmary, but the symptoms, of course, must have begun some days before they were notified as cases of typhoid fever.

These two were removed to the Bristol Union Workhouse, to be under Dr. Henry Grace, who has been good enough to write me to the effect that they were under his care for about seven weeks. "The cases were certainly of a severe type, especially in the younger, in whom the typhoid fever was followed by an abscess in the hand; they had no special laryngeal symptoms."

Case 4: Nurse F., aged twenty-five, who had been nursing Ernest S. in Ward V. of Royal Infirmary, began to have a rise of temperature on March 25th, with pains in the back and limbs.

March 27th: Scarcely any sleep, headache and general pains being very severe, but relieved temporarily by exalgine; temperature fluctuating between 100° and 104°.

On March 31st, the sixth day of her illness, there was some abdominal distension, but no splenic enlargement. The lungs remained clear, but the headache was still a very marked symptom.

On April 3rd, the ninth day, the patient lay in a semi-conscious condition, being aroused with difficulty. She had been passing excreta in the bed for two days. Pulse and respiration frequent; *riles* were heard extensively over bases of both lungs; the abdomen was distended and the spleen enlarged, and typhoid spots appeared.

On April 10th she was very ill indeed, semi-conscious, and presenting every indication of profound nervous depression. Pulse, 148; respiration, 50. The temperature reached 105.2°. She had been ordered digitalis and nux vomica the previous day, and brandy. She did not sleep at all during the night, but was a little better the following morning. Ordered ol. terebinth with each dose of the digitalis and nux vomica mixture every three hours. At one p.m. put in a bath at 78° gradually cooled to 70°. This reduced the temperature of the patient in forty minutes from 103.8° to 101.2°, and it subsequently continued

to 99°8'. Baths were given at intervals during the next eight days ; but on April 19th she became cyanosed, and respiration was laboured, with cough and inability to expectorate.

On April 20th tubular breathing was heard over the left lung, and the patient became unconscious and more and more cyanosed. Several injections of strychnine and digitalis under the skin seemed to restore the patient considerably, and she became conscious and was able to answer questions. She, however, became more cyanosed again, and died at 12.30 p.m., remaining conscious till within a few minutes of death.

There was no *post-mortem* examination of this case.

Case 5 : James V., aged thirty-eight, the only one under my care, had been attending as an out-patient, and was admitted to Ward V. of the Bristol Royal Infirmary on November 18th, 1893, under Dr. Shingleton Smith, for aneurism of the thoracic aorta. Subsequent events proved that the line of treatment adopted by Dr. Smith succeeded in practically curing the aneurism.

He had contracted syphilis twenty years before, and for the five years previous to admission the patient had been subject to cough, especially in the winter, and to attacks of laryngitis, his voice having been permanently hoarse for some years.

Laryngoscopic examination showed hyperæmia of both vocal cords.

On November 24th he was placed on Tufnel's diet and thirty grains of iodide of potassium daily. At intervals this was increased, till on March 23rd he was taking thirty grains every four hours, but by this time the pulsation had so markedly diminished that the patient was allowed to get up, and ordinary diet had been resumed in moderate quantities. In fact, by this time Dr. Smith felt justified in expressing his hope that a firm deposit of fibrin had occurred in the aneurismal sac, and that there was every prospect of the aneurism being cured, and at the *post-mortem*, twelve days later, the sac was found to be almost completely obliterated by the deposit of firm *ante-mortem* fibrinous deposit.

But in the meanwhile, on March 23rd, the temperature was slightly raised, 101·2°. On the 25th the patient began to complain of intense neuralgic pains on the right side of the head, which persisted, or rather increased in severity several days. The headache was unrelieved by large doses of bromide of potassium, antipyrin, caffeine, or analgen, but it was slightly relieved by the ice-bag continuously applied, and occasional hypodermic injection of morphine. The intensely severe right-sided headache with vomiting led me to examine the optic discs, but they were normal ; the temperature had risen steadily each day, till it was now persistently above 103°. There was no diarrhœa, but the mental condition and general aspect of the patient, and an enlarged spleen led me to watch for any further indications of enteric fever, though how he could have contracted it I could not conceive, seeing there were no cases in the ward.

On April 1st some typhoid spots appeared on the abdomen, which was tumid, and there was some tenderness on the right iliac fossa, and typical loose enteric stools. I then learnt that a nurse had become ill

with symptoms of enteric fever, and that it was thought she had contracted it from the patient who had died with laryngeal complications from typhoid fever in the other ward. My patient had just been through a course of Tufnel's diet and large doses of iodide of potassium, and with lungs considerably damaged by his aortic aneurism, besides being an old syphilitic and alcoholic subject. Needless to say, his conditions were such as to render him wholly unfit to cope with an attack of enteric fever. Two days later, on April 4th, his breathing became very difficult, and he appeared to be sinking from cardiac failure. On entering the ward shortly after these grave features supervened, I found him greatly cyanosed, with laboured breathing, but with a very fair pulse. Fearing laryngeal œdema had occurred, I got a momentary glance of the larynx, which showed that there was extensive ulceration on the cords, but no glottic obstructions here. We placed him in a steam bed and freely administered stimulants, but in a few hours he died, having become gradually more cyanosed and passed into unconsciousness. The *post-mortem* examination revealed all the typical lesions of typhoid fever at the twelfth or fourteenth day, and these I need not recount.

But in the larynx superficial ulceration was found on the posterior thirds of the vocal cords, and on the anterior surface of each arytenoid cartilage.

From the large and pulpy spleen, following Gaffky's directions, I inoculated some agar culture tubes. The larynx having been removed, it was divided through the posterior commissure with clean and unused scissors. A fresh stream of water direct from the tap was allowed to run on the ulcerated surfaces. I then inoculated other agar tubes with a platinum point, first sterilized in the usual manner by heating to a white heat, and then on cooling plunged into the ulcers on the vocal processes. As I hoped to obtain evidence which might solve the vexed question as to the true character of these ulcers, I endeavoured to insure against possible contamination of the larynx or any of the instruments used with typhoid bacilli from other parts of the organism, but I should add that the scissors with which the larynx was divided posteriorly were not sterilized, and thus a possible, though improbable, source of error was introduced.

One of the splenic culture tubes gave a pure culture of the Eberth-Gaffky bacillus, and one of the "larynx" tubes yielded a plate culture of numerous typhoid bacilli colonies, with a very few colonies of some liquefying micro-organism. From this plate culture, secondary cultures of the Eberth-Gaffky bacillus were readily obtained.

We may recognize that these two preparations of undoubtedly identical micro-organisms may be the Eberth-Gaffky bacilli of enteric fever.

Firstly : by their appearance. They are numerous, very short, rod-shaped micro-organisms, which are so short in proportion to their breadth that they might be almost mistaken for micrococci under a low magnifying power, and they tend to arrange themselves in parallel fasciculi.

Secondly : by the naked eye characters of the culture, with an abundant surface growth in the stab culture, and numerous small discrete growths in the plate culture, without liquefaction.

Thirdly: they do not liberate carbonic acid gas when grown in glucose broth.

Fourthly: they grow in phenol broth, containing '1 per cent. of phenol and '15 per cent. of hydrochloric acid.

Fifthly: they were obtained in pure cultures from the spleen in a case of typhoid fever.

The true nature of ulcers of the larynx in typhoid fever is still an open question.

Are they simple catarrhal ulcerations following the somewhat common complications of typhoid fever, catarrhal pharyngitis and laryngitis, or are they specific ulcers of typhoid fever analogous to the ulcers in the intestine? Osler states that he believes that the bacilli have not yet been found in the ulcers, and Fagge, Murchison, Roberts, Liebermeister, Strumpel, and Bartholow are cited by Lincoln¹ as being of opinion that the ulcers are always secondary and not specific lesions of the typhoid process; while, on the other hand, Klebs, Rokitansky, Landgraf, and Morell Mackenzie are among those who take the view that they are due to a specific deposit upon the laryngeal mucous membrane.

Typhoid ulceration of the larynx is rare in England, having been observed in about three per cent. of cases in which the larynx has been examined, and I regret that in both cases these interesting specimens were not kept, but the importance of these cultures from the larynx is sufficiently obvious. The specific bacilli have been found also in the lungs as well as in the blood of typhoid cases. This discovery throws some light on the method by which the disease may have been communicated, by case 1, the patient first admitted, to cases 4 and 5, for I think, in view of our elaborate and careful precautions, it is practically impossible for any case of enteric fever to be communicated by faecal contamination in the Bristol Royal Infirmary. But although I never saw the larynx of case 1, I have little doubt now that his expectoration contained the specific microbe, and as he was delirious and was coughing and expectorating in all directions, I conclude that from this cause the nurse in attendance contracted the disease.

I also ascertained that my patient, having recovered from his aneurism, and being allowed up, was in the habit of going into Ward V., to see another patient, and though he never went within a few feet of the typhoid case, there can be no manner of doubt that he contracted the disease during his visits to this ward. Very possibly, the fact of his having an old-standing laryngitis rendered him particularly vulnerable in this region.

There is no evidence as to how the two brothers of Ernest S., viz., cases 2 and 3, became infected. Ernest himself had been working at several houses, but there was no history of illness at these places nor amongst his fellow workmen. The water supply at his home was "Company's," and there was no reason to suspect the milk supply. The brothers were supposed to have been secondarily infected from stools kept in the house owing to the situation of the w.c.'s several yards away.

¹ Burnett's "System," Vol. II. p. 655.

I would direct attention to the peculiarly virulent type of fever here presented. All the three cases in the Royal Infirmary began with very severe headache and backache, profound nervous prostration supervened very early in the cases, and all three died apparently from respiratory failure.

In two at least there were laryngeal ulcers, and probably also in the third, the nurse.

In case 1 there was purulent discharge from one ear, and in case 4 an abscess formed in the arm; and in this connection we may bear in mind that Chantemesse and Vidal consider that the specific bacillus is the cause of chronic osteo-myelitis following typhoid fever, while in some of the cases attended with pus formation typhoid bacilli, often of extreme virulence, have been found in the pus even eighteen months after the fever.

The futility of seeking to prevent relapses in typhoid fever from the administration of so-called intestinal antiseptics hardly requires to be emphasized. It has long been known that the specific organisms can generally be found in the mesenteric glands and in the spleen, the enlargement and softening of which is due to their presence in this organ, and I think that there are very few now who have not ceased to expect much result in this direction. But the practical importance of bearing in mind the possibility of typhoid fever being communicated by the expectoration cannot be over-estimated.

These cases would seem to explain the possibility of typhoid fever being infectious, as maintained by Budd—a view endorsed by Collie¹—and brings home to us the necessity for more careful prophylaxis in cases exhibiting laryngeal complications.

In conclusion, I acknowledge with sincere thanks my indebtedness to Mr. F. Wallis Stoddart for the kind and skilled assistance he rendered in undertaking the investigation of the cultures.

The Surgical Treatment of Chronic Empyema of the Antrum Maxillare. By SCANES SPICER, M.D. (London).

The method which I have adopted in treating cases of chronic empyema of the maxillary antrum during the last two years, and which I have applied to cases previously treated by others and myself without success by the more ordinary measures, was referred to in a few lines *apropos* of a case shown at the West London Medical and Chirurgical Society in the "British Medical Journal" of June 23rd, 1894, p. 1361; but, as no detailed account of it has been published by me, I have ventured to submit it to this section as a contribution to the present discussion.

In the first place, the diagnosis having been established, the patient is placed under the influence of a general anæsthetic, and, after a crucial incision over the canine fossa and reflection of flaps with a raspatory, a large opening is made with a chisel and mallet in the anterior wall of the antrum according to the methods of Dr. Robertson as published in the JOURNAL OF LARYNGOLOGY and "Lancet" in 1892. Great care is taken that the bone is chipped away down to the level of the floor of the antrum and a groove established down the alveolus. The opening is

¹ "On Fevers," p. 53.

large enough to admit the finger, and so to explore the interior. The interior surface is now curetted thoroughly so as to remove every trace of soft fungous granulation tissue, abscess sac, polypi, cysts, necrosed bone and atheromatous material. Instead of now closing the operation, I introduce the finger into the antrum to act as a guard, and pass Krause's trocar and cannula down the inferior meatus of the corresponding nostril well behind the nasal duct opening, and make *one* or *two* large perforations through the inner wall. Chips of bone are usually pushed into the antrum, and can be detached by manipulation. We have left now, as well as the large opening in the anterior, a permanent large accessory ostium maxillare in the inferior meatus.

The antrum and nose are now irrigated with boracic lotion, and the cavity of the antrum packed with creolin gauze for forty-eight hours, the gauze being made to tightly fit and distend the bucco-antral opening until the tissues around are matted together and the passage established. After forty-eight hours the gauze is removed, and *no form of mechanical drain* is used. Free irrigation is practised thrice daily with a Higginson syringe, and, in addition, the patient is instructed to do two things first, to frequently blow air through the antrum from the nose to the mouth, and *vice versa*, and also to pass antiseptic lotion (boracic solution) from the mouth through the antrum to the nose. The object indeed of the large additional opening in the inferior meatus is to permit of the frequent passage of this free blast of air, which at once moves along any secretions tending to loiter in the antral recess, and at the same time has the practical effect of keeping the bucco-antral opening patent for a sufficient time—at least, usually so. However, if the soft tissues should close over too soon, it is only necessary to apply cocaine and make an incision down to the perforation in the bone. *Pari passu* with the diminution of the secretion the opening contracts, but seldom heals up entirely, and, indeed, this is markedly so in my most successful cases, the patient when completely cured of suppuration being able to blow air through the antrum either way.

By this method we avoid the almost indefinite continuance of discharge into the mouth which, in my experience, attends the adoption of the other methods, and which, I believe, is due to the great irritation produced sooner or later or periodically by the drain used. As a practical result the period of treatment is greatly shortened. To illustrate this and the permanence of the result, I will refer to four cases.

W. B., aged thirty-four. Purulent foetid catarrh in left nostril for twelve months; the usual classical symptoms; diagnosis confirmed by transillumination; eighteen months before a tooth in the region of the left antrum was carious and stopped: "gum-boil" every two months since. Tooth extracted and perforated through the alveolus. No pus at first. Cautiously pushing on the trocar through the thin plate of bone, some very foul pus was discovered. The antrum was then operated on on *May 19th*, 1892, by Robertson's method, and the usual drains were used. Decided improvement for some time, but relapse. Necrosed bone was removed from the nose. Suppuration continued.

Operation repeated on January 28th, 1893, with the addition of large

opening in inferior meatus, and no drainage apparatus used. Within a month suppuration scanty. After two months only a head occasionally. When last seen (June 3rd, 1893) had observed no pus for three months. Report from doctor, June, 1894 : Patient had seen nothing for over a year, and considered himself completely cured.

F. H., lawyer's clerk, aged thirty. First treated by alveolar opening and gold tube fitted to the plate, December 27th, 1890, by Mr. Boyd Wallis and myself. Temporary improvement. After some months the tube caused great irritation and pain, and had to be several times altered, and finally removed. In May, 1892, he was operated on in St. Mary's Hospital, Robertson's method being used, and subsequently the drainage apparatus. Again benefit, but relapse.

In April, 1893, the anterior opening enlarged ; curettement repeated ; large naso-antral opening made in the inferior meatus ; no drainage apparatus used. Discharge soon entirely ceased. Patient was exhibited at the West London Medical and Chirurgical Society in May, 1894. He had seen no matter for nearly a year.

D. F., warehouseman, aged thirty-eight. Well-marked case, of three months' duration ; of dental origin.

Operation carried out by method described, on November 16th, 1893. Report on January 9th, 1894 : Free communication between nose, antrum and mouth ; no discharge of any kind ; no bad smell ; no nasal obstruction. Expresses himself as completely cured, and I have ascertained he was so in June, 1894, eight months after operation.

G. H. S., aged nineteen. Commenced treatment for profuse nasal suppuration on March 5th, 1891. Had extensive intra-nasal disease, of some years' standing. After rectifying the condition of the nose, suppuration continued, and operation on the left antrum was suggested. This was done in February, 1894. Discharge ceased in a month, and patient has been well since.

From the results of these cases, and others, my opinion is that the method I am advocating is the method *par excellence* for operating on antral empyema of long standing, and where we have reason to suspect there are any fungous granulations, atheromatous cysts, necrosed bone from ethmoid, polypi, etc., in the antrum. It is impossible to attack these through an alveolar opening, and it and the single opening through the anterior wall demand a drainage apparatus, which of itself usually prolongs the period of suppuration by irritating the parts ; whereas by this method all intra-antral disease is removed, and a radical cure is speedily effected. I have purposely avoided speaking of concomitant disease of other accessory spaces, and of intra-nasal disease, which would naturally receive the treatment they demand, and have brought forward cases in which one could exclude disease of other sinuses.

Chronic Suppuration in the Ethmoidal Sinuses. By CHARTERS J. SYMONDS, M.S., F.R.C.S.Eng.

The time at my disposal will not permit of my dealing with the whole of the subject set down for discussion, so I propose to limit myself almost entirely to disease of the ethmoid.

Suppuration in the maxillary sinus is so common, and, above all, the diagnosis can be so easily and safely confirmed by exploration, that this class of case presents no special difficulty. The intra-nasal changes produced by the irritation of pus in the middle meatus give rise to appearances not unfrequently mistaken for local disease, and it is a common experience to see the granulations on the outer wall of the meatus treated by the cauterly or other means, on the view that they represent a primary affection. So difficult is it to decide, in some cases, whether the pus comes from the antrum or one of the upper sinuses, that exploration of the antrum becomes a routine method in diagnosis. I have not myself found transillumination of any great service. In women it has some value, but in men, with thicker skins, it is difficult to detect small differences. I put it thus; when there is a marked shadow it is confirmatory; when there is no difference, or a doubtful difference, I explore.

If empyema of the antrum is easy of diagnosis, and the nasal discharge still more easily removed by puncture and drainage, it is unfortunately not so simple to get rid of the tube. In my cases it has been many months before the tube could be removed. I would set down the time at over a year on the average except, of course, in the acute cases.

In my experience I find the most difficult case to diagnose and to treat is the following: a patient with polypi in the middle meatus, associated with discharge of pus. On removing the polypi and curetting the meatus, the discharge of pus continues. The antrum is explored and found healthy; the middle turbinated looks swollen and pale, and, on removing it with punch forceps, it is found soft and gelatinous. The better view thus obtained shows the pus coming from high up in the nose and many vascular granulations. A probe may be passed a long way and impinge on bare bone. After further curetting and treatment, the pus continues to flow, the granulations to develop, and, for fear of disturbing the cribriform plate, one feels bound to desist. The patient has, in some cases at least, to make the best of it, and to obtain alleviation by syringing and cleanliness.

This is a disease either of the ethmoidal sinuses or of the frontal, or of both. Can we easily exclude the frontal sinus? The spot from which the pus exudes and the direction the probe takes aid considerably, and when the pus is seen to travel along a probe, approximately in the frontal sinus, the diagnosis is strengthened. So far as I have seen, there is, in these frontal cases, less pus in the back of the meatus, and no "gelatinous" change in the middle turbinated.

In a doubtful case I am disposed to explore the frontal sinus, and obtain the same definite information as we do in the case of the maxillary sinus. Selecting a point at the inner angle of the orbit, where indeed pus spontaneously finds its way out, an opening may safely be made. Finding the sinus healthy, we are left with the most difficult case of all—that which I have sketched above, and the question I would put to-day is this: What is the best plan of treatment? and ask, What measure of success has followed?

In the following remarks I offer to you my own experience, and, when

I reviewed it for the purpose of this paper, I felt that I had little to say, and needed more to be taught than to teach. I felt that, though I had acquired some confidence in diagnosis, and appeared to see the best line of treatment, yet that I had accomplished very little indeed. I must ask you to accept this communication simply as an effort to deal with a difficult class of case, and as relating my personal experience in the hope that it may be helpful to others.

The first case is an example of simple suppuration of the left frontal sinus. There is no history of a preceding catarrh, though the termination of the case suggests some simple cause of this kind.

Case 1. Suppuration in Left Frontal Sinus, with Œdema of Forehead and Eyelids. Spontaneous Recovery.—Mrs. F., aged forty-nine, was sent to me on June 18th, 1894, by Dr. Alexander, of Faversham, to whom I am indebted for the notes of the case and for permission to publish them.

She stated that she had had pain over the left side of the head for six weeks. Three weeks ago the left frontal region became œdematous, and soon a prominent elevation was noticed at the inner angle of the orbit. A purulent discharge from the nose made its appearance about three weeks ago. It began in the night, and has been occasional. Some relief follows the escape of the pus. The eyelids, cheek, and forehead puff up very much for a time, and then get better. The first complaint, says Dr. Alexander, was of a neuralgic pain over the left side of the head—relieved by antipyrin. Three days before I saw the patient there was an unusual amount of discharge, but there has been less since.

When I saw Mrs. F. there was œdema over the left brow, and a soft swelling at inner angle of orbit, evidently due to an abscess of the frontal sinus pointing at this site. On examining the nose, pus was seen covering the anterior and outer part of the middle turbinated bone, and on removing the secretion the mucous membrane looked swollen and granular, and the pus soon reappeared. There was no difficulty in confirming Dr. Alexander's opinion, that the case was one of suppuration in the frontal sinus. I suggested that he should incise over the swelling, enter the sinus, and enlarge the aperture into the nose. When he went to do this the next day, he found that a fairly free discharge had taken place from the nose, and the œdema had diminished. The operation was postponed, and never required. She was treated by a blister and a nasal spray, and was pronounced well about July 20th.

This I take to be an example of simple suppuration of the sinus similar to that occurring in the antrum, in connection with acute catarrh. It is this class of case which more often comes under the notice of the ophthalmic surgeon. It exhibits the usual site for spontaneous discharge, and indicates this as the point we should select for exploration of the sinus.

No instance of uncomplicated chronic suppuration in the frontal sinus has come under my own treatment, so far as I know. In three cases at present under my care, I suspect that this sinus is affected in association with the ethmoidal, and I propose to explore the sinus from the outside.

Two methods of effecting drainage can be adopted, the one by

removing the anterior end of the middle turbinated bone and passing a canula suitably curved, the other to enter the sinus from the outside at the inner angle of the orbit. From numerous experiments on the cadaver, this proceeding seems simple and safe, and certainly may be accomplished with little or no resulting scar or deformity. I hope in the future we may use this means, for diagnosis and treatment, with the same security as we enter the maxillary sinus.

Next let me draw attention to the most difficult, and in my experience the most dangerous class of cases, that of suppuration in the ethmoidal sinuses. This, in my own experience, is far more common than suppuration in the frontal sinus. The cause of this affection requires much investigation; we find the cases in middle life, though now and then in young people. It certainly is, as a rule, associated with the presence of polypi. At first the case seems to be one of simple polypus, but the very presence of pus indicates the existence of further disease. It is a well-known axiom, I imagine, to all present that pus with polypi, especially when unilateral, indicates suppuration in one or other of the sinuses. Is the disease a primary suppuration, and are the polypi merely pendulous granulations grown into myxomatous tumours; or is the polypus primary, and the suppuration caused by retention of secretion? Or again, is there such a disease as a primary caries or necrosis of the ethmoid? One is tempted to ask one more question; is not the cautery responsible for some of these cases? I think I have seen it produce empyema of the antrum, and if thrust blindly out of sight high up into the ethmoid, I should fear the consequences. The first of the four following examples ended after prolonged treatment in complete recovery, and was from the first a by no means extensive case. One was able to see the patient frequently, and to keep the granulations under pressure, and the part more or less aseptic. In no class of nasal cases does so much value result from a daily dressing as in these. The more one treats them on the same lines as granulations in the tympanic cavity, I mean by antiseptic applications and by pressure, the better are the results. In the following case, the first polypus, which was of large size, was removed in December, 1887. She was under treatment from time to time till August, 1889, when there was very little discharge. After an interval of nearly two years the patient returned, with a considerable amount of purulent discharge, still from the right side only. It had never quite ceased, and of late had increased. She was then regularly and frequently seen for three months, after which she remained well.

Case 2. Nasal Polypi; Chronic Suppuration in Ethmoid; Recovery.—Miss A., aged sixteen when seen with Dr. Bull, of Chislehurst, December 6th, 1887; we removed one very large mucous polypus from the right side, and several smaller ones, under chloroform.

In February and March, 1888, polypi were removed again with the snare, and the cautery applied.

In June, 1888, the membrane over the middle turbinated was noted to be thickened, and the middle meatus narrowed. No definite polypus, therefore she was left alone for two months. There was a good deal of discharge.

In August the mucous membrane, being much thicker, was cauterized.

In October, the discharge still continuing, the cautery was again used.

In December a polypoid mass was removed with the snare from the middle turbinated. As nasal breathing was never complete, and as the meatus was now free, we removed some adenoids with benefit.

In January, 1889, she could keep her mouth shut more easily, but the discharge of pus persisted. A polypoid mass was seen in the middle meatus, and removed.

In August she was much better. There was still more discharge from the right than the left side. The middle turbinated had shrunk, so that now for the first time there was a passage between it and the septum. There was still a little pus.

For family reasons, the patient did not return till May, 1891, when the discharge from the right nostril was more abundant, very troublesome, and distinctly purulent.

On examination, granulations occupied the middle meatus, and pus oozed from this cavity.

The anterior part of the middle turbinated was removed, and then by repeated curetting, application of carbolic acid and of chromic acid, the discharge slowly and gradually disappeared, and ceased by the end of September. She was continuously under treatment for three of these four months. The greater part of the middle turbinated was removed by degrees, and I think the anterior sinus was opened. The actual cautery was not used more than once during these months.

In August, 1892, nearly a year after the cessation of treatment, the patient wrote that she remained well.

It is to be noted here that there was pus from the beginning of the case. It is impossible to say which was primary, the polypi or the condition of the ethmoid; I incline to think the former. Had the use of the cautery in the early period of the case anything to do with the prolonged suppuration? I can only say the remedy was used carefully, and applied only to parts within view.

I next select three cases typical of the advanced and persistent form of this disease, and examples of the condition referred to in the opening remarks. In one there was also empyema of the antrum. All three came under observation first as examples of nasal polypi, and in all the presence of pus was an early feature. In the policeman's case recurrence of polypi was distinctly traced to the irritation of the pus from the antrum.

Case 3. Nasal Polypi; Purulent Discharge from the Middle Meatus; Empyema of the Antrum; Suppuration of Ethmoidal Sinuses.—A police constable attended as out-patient at Guy's Hospital with discharge from the left nostril, with obstruction. After removing several polypi from the middle meatus the discharge continued, and was distinctly pus. There were many granulations on the outer wall, at the anterior boundary of the meatus.

The pus seemed to come from a point higher than the antral orifice. However, in puncturing the alveolus, a fair quantity of pus was removed through the nose, and the nasal discharge reduced a good half.

Now, the pus can be seen to come from a point high up and behind

the situation of the aperture from the frontal sinus. A probe goes up four inches from the nostril, and impinges upon bare bone. There are a good many granulations to be seen. The region has been carefully curetted on several occasions, and an attempt made to enlarge the openings into the sinuses.

The question is, how far may we safely go in these cases? Again, can these cases be dealt with from the outside?

Case 4. *Nasal Polypi; Chronic Suppuration of Ethmoidal Sinuses.*—A girl of twenty-three attended as out-patient at Guy's Hospital in March, 1894, with polypi in the left nostril. There was in addition a purulent discharge, passing chiefly into the throat. The polypi were removed, when the pus was seen to come from the middle meatus. The anterior part of the middle turbinated was removed, and the pus was then seen to issue from a point higher up. On passing a probe, it entered amongst soft vascular granulations, and impinged upon bare bone. These granulations, together with small portions of bone, were removed with the double curette.

When last seen (July, 1894) there was still a fair amount of pus, and she complained of pain over and about the eye.

I may say that some time ago the antrum was explored with a negative result.

This seems a suitable case for exploration of the frontal sinus, and I intend to propose the operation to the patient.

Case 5. *Nasal Polypi; Chronic Suppuration of Ethmoidal Sinuses.*—Henry S., aged twenty-six, came to Guy's Hospital with nasal polypi in both sides. There was a purulent discharge as well, and all the polypi were high up and small. After removal, the pus still flowed from the middle meatus. The right middle turbinated looked pale and polypoid. Its anterior extremity was removed with punch forceps, and found to be soft, pulpy, and composed largely of polypoid tissue. Then a good deal of similar material was curetted away. Later the antrum was explored with a negative result. A tube was retained for a few weeks, without diminishing the discharge.

An attempt was made to open wider into the ethmoid cells, and from time to time granulations are removed. But still the pus continues to secrete, and though the anterior half of the middle turbinated has been removed, and the curette has been passed high up, the condition remains unrelieved. On the left side a similar condition of things exists. This patient has no pain, no sign of retention of discharge.

What is his future? One thinks of the end of Dr. W. (case 7). In treatment the object, so far as I can see, is to keep under the granulations, open a free channel for discharge, and have the part syringed out daily.

The treatment in these cases has been to remove, by means of the double curette, the granulations, together with portions of the middle turbinated; occasionally to apply chromic acid. The aim has been to open up the sinuses and allow free drainage. The cautery has not been used.

It is in this class of case especially that one asks for the experience of others. I feel myself that most benefit results from the use of the

curette chiefly, and of chromic acid occasionally, and, above all, the establishment of free drainage. The daily dressing with pledgets of boracic or other antiseptic wool is almost essential for anything like a rapid result.

Can the sinuses be reached from outside? I will record presently two cases, in which the pus escaped through the upper eyelid, at the inner corner of the orbit. This is, as we know, the track commonly taken when the suppuration extends towards the orbit. Through such an opening I have entered the ethmoidal and frontal sinuses, and Mr. Stewart recorded, during the last session of the Laryngological Society, a case in which, through a similar opening, he was enabled by the use of the curette and drainage to bring about a complete recovery, without interference with the eye.

I am not aware that the ethmoidal sinuses have been attacked, from the outside, along a line suggested by the above facts. Provided it can be done without injury to the globe, it seems to offer the best and speediest means of relief. I also think that it is wise to give these patients periods of rest from operative treatment, instructing them to use irrigation only. Active treatment may do harm, and if the cauterity be used freely I feel almost sure it may do harm. I have no facts bearing upon the possible tubercular nature of some of these cases, nor have I seen any caseous material.

Finally, I come to two fatal cases. In both the disease was primarily in the ethmoidal sinus. In both there was extension to the orbit—in one with a spontaneous escape of pus through the upper lid; in the other an incision was made. In both there was an abscess in the frontal lobe. In one of the cases the frontal sinuses were involved.

Case 6. Chronic Suppuration of Ethmoidal Sinuses; Extension to the Orbit; Cerebral Abscess; Death.—James F., aged sixty-two, came on August 28th to Mr. Brailey as an out-patient at Guy's Hospital with the left eye somewhat proptosed and displaced downward and outward; no paralysis. Between the upper orbital ridge and the displaced eyeball was an elastic swelling, which was thought to be due to an abscess beneath the periosteum of the orbit. The diagnosis made was obstruction of the exit of the frontal sinus, with the formation of pus. An exploratory incision was made, and bare bone found in the roof of the orbit. A very small quantity of pus was evacuated, but the globe did not regain its position. The patient was discharged on the 4th of September, the sinus being still unhealed. On the 16th, in the out-patient department, bare bone was still felt, and there was a free discharge of pus through the drainage tube. On the 30th two small pieces of bone came away. October 7th, the flow of pus ceased. On the 15th he was readmitted, when there was orbital cellulitis, with swelling of the parts around the eye. The next day the wound was opened up under chloroform, and bare bone felt in the roof of the orbit and on the inner wall. On the 21st the temperature was 103.5°. On the 24th the patient had convulsive seizures.

I was then requested by Mr. Brailey to see the patient in consultation. I found him practically comatose, with a high temperature, breathing deeply and rapidly, like a case of meningitis from suppurative otitis.

Through the sinus, at the inner angle of the orbit, bare bone could be felt. I concluded that there was probably diffuse meningitis, and that operative interference would give no relief. On October 26th my colleague Mr. Davis-Colley saw the patient, and, as a last resort, opened the frontal sinus, which was found healthy. He then explored the dura mater and brain without finding any pus. The fits continued; the temperature ranged between 102° and 105°. On the 27th the man died. The *post-mortem* report by Dr. Perry is as follows:—"There was no pus about the wound. The brain was rather wasted, and, on removal, showed a couple of abscesses on the under surface of the left frontal lobe. The more posterior one seemed to be the older, and the pus in it smelt foully, and its walls were greenish and sloughy-looking. Neither abscess opened the lateral ventricle. The dura mater beneath the frontal lobe was adherent to the brain, and there was just a little lymph outside it, between it and the bone, at the front of the frontal lobe. In other respects the brain and membranes were healthy, and there was no general meningitis. On opening up the ethmoidal sinuses on the left, after chipping away the cribriform plate, they were found to be full of greenish pus. There was caries or necrosis of the inner wall of the orbit, and it appeared as if the pus from the nasal fossæ had raised the periosteum of the orbit, and so presented as an orbital abscess. No cause for the proptosis of the eyeball was discovered except inflammatory œdema, and at the autopsy little or no proptosis remained. In the lungs there was diffuse broncho-pneumonia."

Case 7. *Chronic Suppuration of the Ethmoidal and Frontal Sinuses; Abscess of the Left Frontal Lobe; Operation; Death.*—Dr. W., aged sixty-five, was first seen in consultation with Mr. Blatherwick, of Dulwich, September 30th, 1893. The patient gave a history of nasal discharge, dating from the latter part of the previous year, and following an attack of influenza. For this, in January, 1893, he consulted Mr. Stoker, who has been good enough to furnish me with notes of this period of the case.

The nasal discharge appeared of a simple kind at first, and under treatment greatly abated. It returned again, and in April, after severe pain, an abscess opened through the upper lid at the inner corner of the right eye. Mr. Higgins saw him at this period, as the case seemed to be an orbital abscess. The nasal discharge and that from the orbit continued. In the summer he went to Scotland, and while there had what he thought was a severe cold, with sore throat. On his return Mr. Reynolds Ray saw him, and found profuse nasal discharge, with some redness and swelling of the pharynx and fauces.

When seen on September 30th, 1893, the patient was up and about; he was bright and conversational, though rather deaf. There was a profuse unpleasant-smelling discharge from both nostrils. It poured away and never ceased. At times the discharge was excessive, as if some cavity had emptied itself. Through a fistulous opening in the right upper lid pus escaped freely, and on inserting a probe bare bone was felt on the inner orbital wall. The eyeball was slightly displaced outwards and downwards. On examining the throat the pharynx was covered with thick pus, and on introducing the finger the posterior surface of the soft

palate was rough, as was the pharyngeal wall. The sensation communicated to the finger was that of an ulcerated surface. The septum was thickened, and on the left side was an irregular mass, resembling a new growth. Of late Mr. Blatherwick had thought the patient dull, and he had been observed to twitch more than once, and to doze in the day. There was no lack of intelligence, no paralysis of any kind, and the patient was particularly bright and kind.

It did not appear that the case demanded just then any further treatment than the use of persistent irrigation, though subsequent events led me to regret that more active measures were not at once undertaken. Mr. Blatherwick had already given perchloride of mercury, on the supposition that it might be a syphilitic process, and in view of the mass felt behind the palate I concurred in this plan. That peculiar form of epithelioma known as "boring epithelioma," in which there is extensive suppuration, seemed the other possibility. On October 5th I was again sent for, and visiting him at eight a.m. on Friday, October 6th, found his condition serious. Dr. Blatherwick told me the drowsiness had increased, and he was now in bed. The patient recognized me, shook hands, and replied distinctly, though he was very deaf indeed. He relapsed at once into a drowsy state. The temperature was not raised. The nasal discharge was profuse, and again was said to vary. Fortunately Mr. Stoker arrived, and joined in the consultation; and as he had brought some instruments, I proceeded at once to enlarge the sinus leading into the orbit. The turbinated bone was soft, and easily broke away. A large opening was then made into the nose. Then the frontal sinus on this side was freely opened and was found lined with thick pus. Through an existing opening in the septum the left side was entered, and both freely irrigated, and a large tube introduced. He was relieved to some extent, but personally I felt very strongly that there was either a subdural or a cerebral collection. Further exploration for the time was postponed. The next two days, Saturday and Sunday, he seemed better; there was less torpidity, and he took food well. On Monday, however, he was not so well, and as the pus continued to flow freely, we decided to operate again. On Tuesday, the 10th, the right frontal sinus was opened by removing the anterior wall. The bone covering the posterior appeared normal, and was not discoloured. I, however, thought well to remove the bone and expose the dura mater. There was no sign of pus. Then the left frontal sinus was opened and found lined with pus. On removing it and searching the posterior wall, I discovered a very minute black spot (the size of a comma, as Mr. Stoker remarked). This seemed a guide, and on removing the bone with a gouge, black and softened dura mater was exposed, and foul pus escaped from an abscess in the frontal lobe. It was not possible accurately to estimate the size of the abscess, for it was partly empty, and appeared to be discharging through the nose. The patient had now been some time under the operation—which was performed with the use of very little chloroform—and, after inserting a good-sized tube, the parts were dressed. He did not long survive the operation, dying in a few hours.

The centre of disease appears to have been in the ethmoid bone. On

the right side the morbid process spread outwards into the orbit, on the left side it spread into the cranial cavity, upwards from the ethmoid cells. The abscess was opened through the posterior wall of the frontal sinus. I approached it from this route to avoid injury to the eye. The cerebral infection arose from the ethmoid and not the frontal sinus.

The disease here being bilateral, there was no guide as to the site of the abscess. From the fact of the right orbit having been invaded, one naturally searched that side, and yet the pus was found in the opposite lobe.

The spontaneous discharge of pus through the orbit in these cases illustrates the course usually taken when the disease of the ethmoid extends inwards. Both cases also illustrate the most serious complication, that of extension upwards to the dura mater and brain.

When a sinus exists, as in these cases, there is no difficulty in enlarging it and reaching the disease from outside with every prospect of success, provided the malady is unilateral. To reach the ethmoid by external incision must, it seems to me, be our aim when the disease has resisted treatment through the nose. As in suppurative otitis, the danger of long-continued suppuration in the ethmoid cells is extension to meninges and brain. Unfortunately, it is not so readily treated. The bone is more deeply seated, we cannot reach the disease without some risk to the integrity of the movements of the globe, and lastly the operation area cannot be so satisfactorily asepticized. These conditions put a check to exploration, yet when we learn in what proportion of cases cerebral complications arise, we may be more disposed to undertake the proceeding.

In conclusion, let me ask for information on the following points :—

The cause of suppuration in the ethmoid sinuses.

The termination of such cases when left untreated.

The frequency of meningitis and cerebral abscess.

The best and safest mode of treatment through the nose, and

The dangers attending it.

Lastly, as to the practicability of treating the disease from the outside.

On the Diagnosis and Treatment of Empyema of the Nasal Accessory Sinuses. By GREVILLE MACDONALD, M.D. (London).

Mr. President and Gentlemen,—When I was first honoured by a request from our distinguished secretaries to open a discussion on suppuration in the accessory cavities of the nose, the magnitude of the subject made it appear impossible to enter upon anything like a complete *résumé* of the subject, so I have concluded not to attempt this, especially as such work would be so much better done by other workers in the same line; and, if you will bear with me, I shall hope to do no more than introduce the subject, telling you briefly how these cases have impressed me—more especially from their clinical aspect, and from their analogy to certain other surgical diseases. I shall incidentally mention certain lines of treatment that have appeared serviceable in my cases, which, so far as I am aware, have not been generally practised, and I shall conclude by

suggesting certain points that need clearing up, and from the discussion of which I believe we may mutually increase our knowledge.

Many of the worst cases with which we have to contend begin with suppurative inflammation of one or more ethmoidal cell, either during an attack of general rhinitis or independently. The usual story is an attack of sharp supra-orbital neuralgia, lasting for two or three days, and then relieved by a flow of pus from the nose, continuing from one to twelve or more hours, often ceasing, either not to appear again, or recurring after a longer or shorter interval after fresh cold-taking, and in only too many cases becoming chronic. In this case the mischief spreads, other cells become involved from infection, and granulation tissue springs up from a bed of ulcerating bone. The bony dissepiments are absorbed in the process, the granulation tissue and the accompanying suppuration extend in various directions, more especially through the thin party-walls between the ethmoidal attics and the roof of the large chamber in the superior maxilla—indeed, the walls in this locality often consist solely of mucous membrane, and sometimes natural openings may be found. In this way we may have empyema of the antrum arising in association with suppuration of the ethmoidal cells. But more than this, the inner wall of the infundibulum may become similarly absorbed, the passage into the frontal sinus may become blocked with granulations, and septic inflammation may pass upwards into this important accessory cavity. Indeed, the whole history of these cases may be very accurately compared to the course of similar disease in the tympanum: the initial abscess with earache, relieved as soon as the pus gains an exit through the tympanic membrane, the cicatrization of the latter and liability to repetition, in the course of time leading to chronic otorrhœa and proliferation of granulation tissue; while, further, the extension of the mischief into the accessory cavities of the ear completes the analogy. A great practical difference exists, however, in the dangers attending the ear disease, owing to the neighbourhood of large vessels and their becoming involved in the septic process, as well as in the fact that in this region the surgery is comparatively easy and attended with the happiest results; while, in the case of the nose, the danger of the mischief extending beyond its usual limits is comparatively slight, and the surgery is extremely difficult and often unsatisfactory. Yet in both ear and nose there is probably equal danger of the mischief extending to the cranial cavity and the meninges of the brain.

The association of polypus with suppuration is precisely the same in each case, the so-called polypi being no more than more or less organized granulation tissue, over which the epithelium has, or has not, spread to a greater or less extent, the new tissue in the meantime becoming œdematous, and more or less fibrous in character. In the nose, the supply of mucus being more free, the tendency is greater for the growths to absorb water by a process of endosmosis, and to become consequently more translucent and colourless.

In points of diagnosis, all I would insist upon is the importance of realizing the fact that where we have suppuration in the nose together with granulation tissue or polypi in the middle meatus, we can seldom, at

first sight, be sure of the full extent of the disease, and must, therefore, be guarded in our prognosis. I have not infrequently seen cases where suppuration in the antrum was supposed to comprise the whole disease, and the patient promised a cure upon its evacuation, whereas the anterior ethmoidal cells, and possibly also the frontal sinus, were quite as much at fault ; or, on the other hand, cases which had long been under a course of treatment for the so-called necrosing ethmoiditis, where the antrum had been overlooked, although the prime source of the profuse suppuration.

I am not going to trouble you, sir, with any remarks upon empyema of the antrum, for I believe the subject has been well thrashed out, and any one of us specialists would write an almost identical paper on the subject, but I cannot refrain from remarking that much of the disagreement among us as to the etiology of the disease arises from the fact that we do not all recognize the frequent coexistence of ethmoidal disease and caries of the middle meatus with pus in the antrum.

But the association of suppuration of the frontal sinus with ethmoidal and antral disease is a point that I think may well repay discussion, so difficult is the diagnosis—except, of course, in cases of acute abscess and retention. In all the cases that I have seen, or in which I have suspected the frontal sinus to be involved, there has been coexisting suppuration of both the ethmoidal region and the antrum, and practically I may assert that I have never been able to diagnose positively the condition until the discharge of pus has been arrested, or at any rate greatly modified, by treatment of the coexisting sources of the suppuration. The diagnosis is indeed the more difficult in that the very symptom upon which we most rely as proof of the presence of pus in the antrum, viz., the augmented flow on bending the head forwards, may be presented, even to a striking degree, in empyema of the frontal sinus, and even after the antrum has been proved to be free of any pus whatever. And I must confess to a strong suspicion that in these complicated cases where the suppurative mischief is not confined to any one region, the frontal sinus may be far more frequently involved than we have as yet means of ascertaining.

In speaking of the treatment of these affections, I am always careful to impress upon my students the fact that there is little to be said beyond the inculcation of ordinary surgical principles. In the first place, we aim at securing free drainage, which in the case of the antrum is easily enough provided for, but in the case of the ethmoidal region may prove exceedingly tedious to ensure. All polypi and granulation tissue must be removed as impediments to free drainage ; while it may prove necessary to remove a greater or less portion of the middle turbinated body. As a destructive agent in these cases, I prefer chemical caustics to the incandescent wire, seeing that the presence of a large quantity of pus and mucus, in which the granulations are so generally imbedded, is apt to induce scalding of more or less extensive areas, owing to the generation of steam. Thorough irrigation with antiseptic lotions, frequently and forcibly applied, is of essential service. Lately I have used, with enough success to warrant further experiment, a twenty-five per cent. solution of peroxide of hydrogen, made by Messrs. McKesson and Robbins, of New York, and called by them *pyrozone*. It is said to be caustic, although it

produces no destruction of granulations ; but it destroys with marvellous manifestations all pus, and probably its putrefactive accompaniments. It is applied in small quantities on a mop of cotton-wool tightly wrapped round a probe, and can be as safely thrust deeply into the all-suppurating sinuses and cells, with the production of a violent ebullition of oxygen, which rapidly fills the fossæ with a tenacious froth. If applied in too large a quantity at a time, the sudden liberation of gas may produce enough tension to give pain ; but used cautiously, and with cocaine, it is absolutely free from objection, and certainly has some, if not considerable, power in reducing the quantity of pus.

There is one other point in the treatment of suppuration confined to the ethmoidal region to which I wish to draw your attention, and with which I have had some success. By allowing the head to hang backwards over the end of a couch, so as to assume an inverted position, it is possible to fill up completely the nasal cavities with fluid. By using a non-irritating antiseptic lotion, such as a five per cent. solution of boroglycerine, and pouring it into the anterior nares while the head is thus inverted, we can insure the summit of the nasal cavities being thoroughly irrigated, and thus washed of their retained secretion. After a little practice a patient will be able to keep his head in this position for fifteen or twenty minutes at a time, although it always entails more or less headache afterwards. In one case, at least, it has completely arrested suppuration of some fifteen or more years' duration, which had defied more ordinary lines of treatment ; and in another I believe the results have been quite as striking. But it is a mode of treatment that should not be attempted except while the patient is closely under observation. I have known it induce very severe neuralgia, and in one case the temperature rose immediately afterwards to 103° F., the patient suffering very acutely. But although we did not venture a repetition of the process in this patient, the single attempt produced such striking amelioration of the symptoms that he declared himself cured.

There is yet one point in the treatment of these affections which will, I think, be well worth eliciting the opinions of our *confrères* in this special department. It is implied in the questions as to how far we may venture to leave alone ethmoidal and frontal suppuration, provided there is fairly free drainage ; or, on the other hand, as to how far it is incumbent on us to urge upon our patient the necessity of a course of treatment full of inconvenience to himself, necessarily extending over a very considerable length of time, and not absolutely certain in its results. What is the actual danger in leaving the disease untreated ? Exactly how great is the risk of meningitis ? Is surgical treatment, say of the cribriform plate, in itself devoid of risks, and may we not in our anxiety to attack the malady actually induce that which we seek to forestall ? These seem to me questions of vital importance which each of us has to ask himself before undertaking any case. For my part, I am inclined to think that rather than put before our patient the actual risks which he is incurring by leaving the catarrh, as he calls it, untreated—which risks are apparently not great, and which we cannot in every case be certain of our ability to eradicate—I am inclined to think, I say, that rather than fill his mind with fears, which

might never become substantiated, it were perhaps wiser, in his interests, to leave the disease to take its course, contenting ourselves with draining and irrigating so as to reduce the dangers to a minimum.

Finally, sir, I would suggest as points specially worthy of discussion :

1. The diagnosis of suppuration in the frontal sinus, when associated with antral and ethmoidal disease, excluding, of course, acute abscess and retention of pus ;
2. The treatment of ethmoidal suppuration ; and
3. The question I have last raised, viz., the necessity of treating chronic frontal and ethmoidal suppuration.

DISCUSSION ON DR. MACDONALD'S PAPER.

Dr. MILLIGAN (Manchester) thought that, in cases of unilateral empyema of the maxillary sinus, pus was usually to be seen, during intra-nasal examination, flowing from under the middle turbinated body. This flow was markedly increased by the patient lowering the head, and more especially by the patient both lowering the head and turning it slightly, so that the affected side became uppermost. The flow was intermittent ; was generally worse in the morning, when it was frequently found to have travelled backwards to the post-nasal space, and the patient was painfully conscious both of a disagreeable smell and of a disagreeable taste in the mouth. Percussion over the antral area he had not found of much value in chronic cases, but in one acute case recently under his care, percussion elicited marked pain. He was in the habit of examining every suspected case of antral disease with Voltolini's electric lamp placed in the mouth. In all the cases in which the antral area had been opaque, in which there was no light-zone immediately under the lower eyelid, and in which the corresponding pupil had not shown a red and luminous reflection, pus had subsequently been found when the cavity was opened.

In several cases, however, with well-marked opacity he had been surprised to find but a small quantity of pus, and was consequently inclined to think that the opacity might in certain cases be caused not so much by the presence of pus as by the presence of a thick pyogenic membrane, the result of the constant presence of a purulent exudation in an almost closed cavity. He believed that the absence of a red glow in the pupillary region was a very important diagnostic sign of the presence of antral suppuration. He thought it would be desirable that a lamp of definite illuminating power should be used in such cases, as with lamps of varying strength he had seen somewhat differing results. The age of the patient, the height of the alveolar margin, and the formation of the palate, should all be borne in mind during the time of the examination. He was in the habit in all cases (seeing that absolute positive evidence could not be obtained from the use of the electric lamp) of puncturing the outer wall of the nose with a fine Lichtwitz's trocar as a routine method, and as a means of diagnosis only. The puncture could be made almost painlessly if the nasal mucous membrane were previously anæsthetized with a ten per cent. solution of cocaine. He employed no nasal speculum during this manipulation, thrusting the trocar well upwards and out-

wards at a selected spot between the middle and inferior turbinated bodies. Through the accompanying canula he syringed either a warm solution of weak boracic acid or of hydrogen peroxide, keeping the patient's head well bent forward during the proceeding, and watching closely for the escape of pus from the anterior naris of the same side. In no case had he seen any harm result from this manipulation, which he regarded as the most valuable of all methods for accurately diagnosing the presence of antral suppuration. Over the small wound in the nasal mucous membrane, caused by the trocar puncture, he insufflated a small quantity of aristol, which had the double advantage of hastening repair, and of checking hæmorrhage. He had had no experience of irrigating the antrum through the natural opening in the middle fossa of the nose.

Regarding the method of opening the antrum, he thought that that method should be chosen which would afford the best possible drainage. An opening in the most dependent portion of the sinus would afford this, and as in his experience the great majority of cases were secondary to dental irritation, the diseased tooth should be drawn, and an opening made through the alveolar margin. This opening he made (the patient being fully anesthetized, and with the head thrown well backwards) by means of a small trephine, worked by a dental engine. After having made the opening, and after having syringed all pus out, he was careful to examine with a bent probe for the presence either of a highly granular state of the mucous membrane, or of eroded bone, and if present to curette the parts thoroughly. He considered the after treatment the real *crux* of the question, and largely from this fact—that it was somewhat difficult to get the patient to thoroughly cleanse the cavity. For some time past he had used the accompanying small irrigating canula in the following way:—The opening in the alveolus was made just large enough to hold comfortably the gold-plated antrum tube, and the rectangular silver canula was made to fit exactly into the antrum tube, and long enough to project into the antrum, so that the stream of fluid subsequently injected might be readily scattered within the cavity itself. The rectangular silver canula was provided with a movable platform carrying a rubber washer which, when pushed up against the alveolus, completely closed the opening, and prevented any regurgitation of fluid.

When in use the canula was run up into the gold-plated antrum tube, the platform was raised until the rubber washer completely closed the alveolar opening, and the whole apparatus was kept *in situ* by means of the patient closing the jaws upon the instrument.

In order to irrigate the cavity a long rubber tube was attached to the canula (see photo), and a syphon action established. In this way thorough irrigation could be obtained with very little trouble to the patient, and with very satisfactory results. The gold-plated canula was attached to a dental plate, and kept closed by means of a small screw plug.

In the treatment of suppuration of both anterior and posterior ethmoidal cells, of which he had seen a few cases, the diagnosis had been established by carefully watching the flow of pus, while, at the same time, disease of the frontal sinus and of the antrum could be excluded. The treatment had consisted in breaking down the cells with a small Volk-

mann's spoon, converting the whole into one large cavity, and packing loosely with iodoform gauze.

Dr. WILLIAM HILL alluded to three cases which had been under his care, and which he had transferred to his colleague, Mr. Ernest Lane, who had opened the antrum and cleared out morbid contents by a large opening in the canine fossa, making a counter-opening in the nose in the middle fossa. In two of these three cases the result had been satisfactory ; in the third case, in which both antra were opened, the symptoms were only relieved on one side, and the surmise was that the ethmoidal cells on that side required further operative treatment. Dr. Hill had had two cases of ethmoidal cell disease, in one of which polypoid hypertrophy was found.

Mr. RICHARDSON CROSS : My experience is confined to cases where the orbital cavity has been the seat of extension of disease. In the "Ophthalmic Review," 1892, I published a paper on empyema of the frontal sinus. In one of the cases the pus cavity occupied also the ethmoidal and sphenoidal sinuses, and death resulted from inflammation of the brain meninges, though *post-mortem* examination revealed no direct communication between the skull cavity and the abscess sac.

Where a continuous purulent discharge from the nose is complicated with frontal headache, and where occasional cessation of the discharge is associated with increase in the headache, and particularly with swellings or evidence of inflammation over any surface of the frontal sinus, empyema of this cavity is certain, and operation for its relief should not be delayed—alternating relief or exacerbation of the symptoms may without interference result, but cure will not follow without surgical interference. This should aim at relief towards the nasal cavity through the natural channel, the infundibulum ; this can, I think, be found by a probe, after trephining either through the frontal eminence, or by selection at a point I have defined in the paper alluded to, which opens the sinus at the spot most nearly available to the upper end of the infundibulum.

The operation should be done early ; if not, there is a risk of the ethmoidal and sphenoidal sinuses becoming implicated in the disease, thus rendering brain complications more probable. I should have no hesitation, when the os planum of the ethmoid is forced towards the orbit, in freely incising the upper lid, and when necessary also the *teudo oculi* over the lower lid, so as to freely open the ethmoidal bone and to give exit to the accumulated fluid towards the nose. If this cures the empyema the eyeball and contents of the orbit will replace themselves, whilst among other dangers that follow the progress of the disease is inflammation and atrophy of the optic nerve, almost as serious for the patient as the loss of his eyeball.

Dr. H. KNAPP : I beg to say a few words about the differential diagnosis of empyema of the accessory sinuses of the nose. We have to distinguish empyema from exostosis and sarcoma of these cavities. These three diseases may be very occult in their beginning. They then produce an inflammatory, more frequently a non-inflammatory, swelling at the walls of the orbit, and feel hard and bony. The diagnosis is made either

by a puncture or by the initial step of any operation—the incision. The progress of the operation will then be guided by the diagnosis. But even on the *post-mortem* table it will not always be easy to distinguish between empyema producing hard, lardaceous-looking granulation tissue, or an original sarcoma producing corrosion of the walls of the sinuses and subsequent suppuration.

Dr. GRANT attributed considerable value to transillumination, if only because it sometimes, in cases where antrum suppuration was suspected, showed such unmistakable translucency that empyema could be absolutely excluded and unnecessary operation avoided. In several suspicious cases he had forbidden the performance of perforation through the alveolus, relying upon evidence of this kind. For further exploration of the antrum he employed Lichtwitz's fine trocar, which could be passed into the antrum through the outer wall of the inferior meatus. Boric solution syringed through it would wash out any pus there might be in the antrum. In those cases in which there was no evidence of dental disease he thought it wrong to extract a tooth, and considered it desirable that treatment should, if possible, be carried out through the nose. Garel, of Lyons, urged that it was feasible in a large number of cases to irrigate the antrum through the natural opening in the middle meatus, and maintained that he had obtained a high percentage of cures by daily use of boric solution by this channel. He found that cases were of two classes—those that recover with very great rapidity, and those that were rebellious under all treatment. The former would probably be susceptible of cure by treatment through the nose, the latter only by free opening in the canine fossa. Dr. Grant thought that after the use of Krause's trocar through the inferior meatus, irrigation would be facilitated by the removal of the anterior portion of the inferior turbinated body. This could be done by means of scissors or of a punch-forceps.

In a case of his of frontal sinus suppuration in which antral disease was carefully excluded, the discharge persisted in spite of external operation; he found that suppuration in the antrum had supervened, and was only diminished by irrigation of that cavity. He thought sphenoidal disease was capable of being diagnosed in many cases. When pus ran down between the middle turbinated body and the septum it might be suspected, and a canula which he showed (devised by Lichtwitz) could be often passed into the natural orifice, so that muco-pus could be syringed out, and the diagnosis established, while the headache was relieved. Sometimes exposed bone could be felt in the region indicated. In a case under his cure he had removed on repeated occasions a myxomatous growth of the middle turbinated body, but there always remained a portion posteriorly which he could not seize with a snare. One day there came away a mass of granulation tissue, attached to a thin plate of bone, obviously from the front of the sphenoid. He could then introduce a probe or a canula into the sphenoidal sinus with the greatest ease. Growths apparently arising from the middle turbinated body, which could not be caught in the snare, should therefore be suspected of originating from the front of the sphenoidal sinus.

In case of inflammatory swelling set up by the discharge of pus from that cavity, the enlargement of the middle turbinal might easily occlude the orifice. We should therefore be prepared to remove, by means of a snare, the posterior part of that body when it produced such an effect. In a case of sphenoidal suppuration, producing intense headache and mental disturbance, this operation gave the greatest relief. To show how necessary it is to diagnose and treat sphenoidal suppuration, he would add to what Mr. Cross and Dr. Knapp had said by citing a case recently reported by Dr. Sandford, of Cork, in which he had had the opportunity of making a *post-mortem* examination of a lunatic who had become blind some time before death. There was enormous distension of the sphenoidal sinus, compressing both optic nerves, and extensive extra-dural suppuration.

Ethmoidal sinusitis was very troublesome, and was apt to give rise to one of the forms of atrophic rhinitis as a sequel to the suppuration. He believed that a number of cases of atrophic rhinitis arose from sinus disease, others from syphilis, and others without any discernible cause. In the case of a gentleman sent to him by Dr. Cartaz, of Paris, this stage had been reached, and the most distressing mental depression with asthenopia and dread of light accompanied it. He got considerable relief from irrigation of the ethmoidal cells, by means of suitable canule through the nose, the orifices being enlarged artificially as well as by the disease, and particularly from the use of the post-nasal douche. Chiari is reported to say that the ethmoidal cells are best opened by means of a perforation made in the bulla ethmoidalis. The anterior portion of the middle turbinated body may be previously removed.

An interesting case of ethmoidal disease occurred in the person of a medical friend. It caused proptosis, and several eminent surgeons diagnosed the case as one of sarcoma requiring operation, but offering little hope. The operation was commenced, and during the necessary dissection the swelling was punctured, and pus escaped. He is now perfectly well, and has no discomfort as long as he keeps the external orifice of the sinus from healing up by means of a small celluloid plug.

ELEVENTH INTERNATIONAL MEDICAL CONGRESS IN ROME.

ON THE OPERATION FOR ADENOID VEGETATIONS.

By Prof. OTTOKAR CHIARI (Vienna).

THE material from which I make this review extends itself over 233 cases in my private practice, and 152 in my hospital practice. The former were observed between the years 1883 and the middle of 1893, and were all taken from among 5173 cases of disease of the throat and nose, corresponding, therefore, to a percentage of 43. The latter 152 cases were seen between 1889 and the middle of 1893, and they were derived

from about 4000 throat and nose cases, corresponding to a percentage of 3·8. It is, therefore, a somewhat remarkable fact that in the class frequenting the hospital the disease was less frequently observed than among the better-off private patients. I explain this by the circumstance that the poorer class pay less attention to whether a child sleeps with open mouth or shows other signs of disturbed nasal respiration. Among the poor and less well-nourished classes scrofula (which, according to many authors, and especially Schäffer, of Bremen, is one of the most frequent causes of adenoid vegetations) is much more frequently present than among the well-to-do middle classes living in good circumstances, whereas also infectious diseases, such as scarlet fever, measles, diphtheria, etc., occur more frequently and with greater severity among them. All these diseases, it is to be remembered, favour the growth of vegetations.

As regards the classification according to age and sex, there were different data under the two headings, which I will here shortly set forth, although they do not properly belong to the question under consideration. Out of the 233 private patients, 121 were of the male sex, 112 of the female, while among the hospital patients to 58 males there were 94 females; therefore, there were relatively far more females than in private practice, where both sexes were nearly equally balanced. As an explanation, we may observe that the poorer people frequenting the hospitals notice the girls more than the boys, as the latter leave the parents' house comparatively very early in order to follow their various occupations; and furthermore, the peculiar appearance of the face produced by nasal obstruction would strike the parents more in the case of girls than in that of boys.

As regards age, we find among the 335 cases that 379 were sufficiently accurately noted to show that there were 130 under ten years old, 196 between ten and twenty, and 37 over twenty; 16 were more than thirty years old, and the four oldest were aged respectively forty-two, forty-six, fifty-one, and fifty-nine. These reports show, in agreement with other statistics, that by far the largest number of cases of adenoid vegetations come under observation before the twentieth year of life. It is, however, remarkable that we have a comparatively large number, namely 16, of persons over thirty years of age, whereas Schäffer, in his statistics of over 1000 cases, found only 6. Of my 16 cases, 14 had only small growths, which, as seen by posterior rhinoscopy, only reached to the superior turbinated bone. Frequently these were very hard, and gave rise to a considerable amount of bleeding at the operation; once they extended to the middle of the choanae, and once concealed the choanae completely. This last case was one of a woman, forty-six years old, who suffered from bronchial asthma. I had the satisfaction, after extirpating the growths completely in two sittings by means of the snare, to see the asthma disappear entirely. Once there came to me a man of fifty-one years of age, with a son aged fifteen, both showing vegetations of medium size, which I removed in both instances.

Shrivelling up of vegetations appears, therefore, not to take place with equal rapidity in all cases, and indeed in many not to occur at all; still, in any case, there is a modification of the symptoms when the vegetations in

adults cease to grow, as the choanae increase in size from childhood to mature age, and hence are not so much obstructed by the growths, which cease to enlarge. On an average the adenoid vegetations were in adults generally smaller and harder than in children, which would agree with the general view regarding their involution. The youngest patient was two years of age.

As regards the etiology, I have frequently found slight evidences of scrofula in children, and from many elicited the information that they had undergone attacks of scarlet fever, measles, and whooping-cough. At the same time I must state that frequently quite healthy, strong children were troubled with adenoid vegetations. Frequently the affection showed itself in several of the same family, once (as already mentioned) in a father and son, once in a mother and three children, so that in such cases we had to admit that there was a congenital predisposition. Various complications which occurred throw light upon the etiology. Thus I found in the 233 private cases, which are sufficiently described, that 39 times the faucial tonsils were chronically enlarged, in 39 there was atrophic rhinitis with extensive formation of crusts, and in 24 abnormally wide nasal passages without any anomaly of secretion. Therefore, in 63 there was a diminished development of the turbinals, which, according to the views of Hoffman, is to be looked upon as a sign of a constitutional anomaly. Finally, I was able, as I pointed out so far back as 1887, to see the vegetations in very many cases by means of anterior rhinoscopy if I directed the patient to utter the sound "ee" (German "i"), which caused the velum to rise. The vegetations were generally raised at the same time and more easily seen. That, of course, was only possible when the interval between the turbinals and the septum was fairly marked, which generally depended upon the diminished development of the turbinal bodies without necessarily there being anything that one could call atrophy. Of course, no cocaine was put into the nose during this investigation, and it was only used when there was evidence of hypertrophy of the mucous membrane, as was the case 67 times. The diagnosis could in many cases be made by the results of the obstructed nasal respiration—namely, the open mouth, the peculiar physiognomy, the altered speech, etc., with a considerable amount of probability, but it was almost always confirmed by rhinoscopy generally, both anterior and posterior. The former made the diagnosis possible, as already pointed out, in very many cases, but as a rule posterior rhinoscopy was generally employed as well, and very frequently without any necessity for the application of cocaine in the pharynx. A mirror of only thirteen millimetres in diameter was necessary, which could be passed into, even through, a very narrow space. In exceptional sensibility I painted the pharynx, the velum, and the base of the tongue with a twenty per cent. solution of cocaine, made the patient sit on a high chair, or else stand up and bend the head slightly forward; I could then easily, even in small children, inspect the naso-pharynx. I have very seldom used a palate-hook, and then only in exceptionally unfavourable cases. In this way I was able to carry out posterior rhinoscopy 206 times in the 233 private cases—naturally, only seldom in quite small children, but still several times, even if a good deal of trouble

was required. In these cases I carried out digital examination, partly to judge of the degree of hardness of the growth, and partly as a substitute for unsuccessful inspection. It was interesting to compare the results of anterior and posterior rhinoscopy, which were almost in all cases carried out on the same individual.

Anterior rhinoscopy allowed in the somewhat wider noses the lower border of the vegetations to be distinctly seen, and indeed in a more natural way in the correct height, because by this process one looked thoroughly into the naso-pharynx, whereas by posterior rhinoscopy the lower border of the vegetations often appeared higher than natural. The vegetations lie, of course, somewhat behind the choanæ, so that when seen from behind and below in the mirror they seemed to lie further away from them than one would expect from the direct investigation from in front. [Anterior rhinoscopy.] The form of the vegetations was generally papillary, either lying close together or hanging more perpendicularly, more rarely forming a smooth cushion-shaped swelling. In all the cases in which rhinoscopy was employed, this was seen to grow only from the roof and posterior wall of the pharynx; the fossæ of Rosenmüller and the Eustachian tubes were always free. The vegetations, as seen in the slightest cases, always presented by posterior rhinoscopy the form of small elevations projecting slightly beyond the arcades of the choanæ. The other cases I have divided for the sake of this review into four classes, according to the different extent of the choanæ which they covered. Exact descriptions of them were taken only in the 233 private cases.

Thirty-four times the vegetations reached the velum ;

Thirty-six times they covered the inferior turbinal completely or in part,

Seventy-two times the middle one completely or in part ;

Fifty-eight times they extended only to the upper border of the middle turbinal ;

Six times there were only traces of these vegetations to be seen in the form of small elevations ; and

Twenty-seven times the size of the growths could only be very imperfectly made out, or the notes are incomplete with regard to it.

The largest vegetations were found in children, the smaller ones chiefly in older people ; still, there were many exceptions, and naturally we refer here to the relative sizes as compared with the lumen of the choanæ. In 4 cases there was an unequal development of the vegetations, in so far as they extended much lower down upon one side. The treatment consisted always in the removal by means of a cold steel wire snare introduced through the nose, and the result was always controlled by posterior rhinoscopy. In the 233 private cases removal was complete in 113, in 9 only partial, in 46 cases the operation was refused, in 11 the snare was further used from behind, and in this way complete removal effected. Once Catti's forceps, twice the snare from behind only, and once Gottstein's ring knife were used in the operation. In the 152 hospital cases, regarding which there were frequently no sufficient notes:

62 are recorded to have been cured by means of a cold snare passed through the nose. This number is, however, according to my personal recollection, far too low, and is owing to the incompleteness of the hospital records. In order to review again the 233 well-recorded private cases, the cold snare passed through the nose was sufficient in 103 for the complete removal of the vegetations. In 24 the operation was not complete when practised from in front, because the formation of the nose prevented the introduction of the snare, or else its elevation in the naso-pharynx owing to outgrowths and deviations of the septum, or through the proximity of the middle turbinated body to the septum. In the hospital cases I frequently used Gottstein's knife, Löwenberg's and Michael's forceps, Trautmann's spoon, or a wire snare introduced through the mouth, chiefly for the purpose of showing my pupils the mode of using these instruments.

The snare used by me is on Blake's model, with a closed tube of about twelve centimètres long, which at its anterior extremity is divided into two mouths by means of a bridge. The two ends of the steel wire are clamped behind between two roughened steel plates, fixed by means of a screw. This fastening is attached to the slide, and we have, therefore, a quickly-arranged and very powerful fixation for the wires without it being necessary to twist or wind them. This mode of fixation makes it possible to remove very resistant structures, such as hard vegetations, circumscribed hypertrophies of the turbinals, the anterior extremities of the middle turbinals, with their bone plates, etc., neatly and smoothly, as the instrument acts like an *déraseur*. In addition, it is very light and handy, and can get round all prominences, and pass through even narrow noses, as the diameter of the tube only reaches three millimètres. The most useful thickness of steel wire for adenoid vegetations is one of 0.36 millimètres, as with this thickness the snare keeps open most easily. The operation is conducted in the following way :—Both nasal passages are cocaineized by means of a twenty per cent. solution of hydrochloride of cocaine on cotton-wool swabs from before backwards as far as possible, extending into the naso-pharynx, for one or two minutes. Then the snare, placed vertically, is passed through the inferior meatus, with or without the guidance of the light, until it reaches the naso-pharynx, when the handle is to be lifted up so that the snare may pass underneath the vegetations, and the instrument is then turned through a right angle, so that the snare comes to lie horizontally. The instrument is now drawn back so far that the wire may touch the septum (which is easily recognized by tactile sense), and then the handle of the instrument is lowered so that the vegetations may come at their point of attachment within the grip of the snare. A simple closure of the snare is then sufficient to effect their removal. As a rule the pieces thus removed, which attain often the size of a hazel nut, cling to the tube, or come out, after the removal of the tube, into the nose, and then can easily be removed by blowing, or, what rarely happens, they may fall into the pharynx. This takes place only rarely, because ordinarily a few fibres remain held between the snare and the bridge at the mouth of the tube. This proceeding is on either side to be repeated from three to four times,

and the tube is either kept perfectly straight or pushed further outwards or inwards so as to remove all the growths—that is to say, also those growing from the side or behind the septum. The hæmorrhage is very slight, so that subsequent syringing with ice cold water is unnecessary. The pain under the cocaine is completely absent or very slight, and the reaction minimal. Only once out of all the cases was there next day a swelling of the cervical lymphatic glands, and never suppuration in the middle ear as a result of the operation.

With reasonable children I used no assistant, and at most the mother supports the patient's head from behind. Unruly patients, on the other hand, have to be wrapped in a sheet, held upon the seat by an assistant, while a second one fixes the head. The after-treatment consisted in gargles of a mild solution of permanganate of potash. If the parents are very anxious, I operate only upon one side at a sitting, so that then two sittings at least are necessary. Often I have had several sittings, especially in the case of narrow noses and extensive growths, and I only perform the second operation when the nasal mucous membrane is no longer of a ruddy tint. A few days after each operation I make an inspection of the naso-pharynx in order to see if there are any remnants, and proceed then with the operation until the arcades of the choanae and the tubes are to be seen quite free. My records of the 233 cases in private practice give a

Cure in one sitting	66 times.
„ two sittings	56 „
„ three sittings	33 „
„ four or five sittings.....	7 „
„ nine sittings.....	1 time.

The total of recoveries under the simple use of the snare from in front was 163. If we calculate along with these the 46 cases not operated on, there remain 24 in which this method had no result or only a partial one. The reason for this non-success lies in the unfavourable narrow build of the nose, which prevented the introduction of the open snare; otherwise the operation took place always with ease, even in very little children, as for example in two of three years old, two of four years old, eleven of five years old, five of six years old, and twelve of seven years old, and so forth. In the smallest child, which was aged only two years, the operation was not followed up. These statistical data are sufficient to show the practicability and certainty of the method in most cases, as well as its freedom from danger.

I have now to meet the objections which have been made against it. Before all, it is said it is only applicable in a very limited number of cases, namely, only in wide noses, but this is contradicted by my statistics. Further, it is said only to be available in papillary pedunculated growths. This objection I cannot with certainty contradict, as I only saw and operated on growths of this kind. Still the snare also proved its usefulness in some cases of hemispherical flat hypertrophies of Lusekha's tonsils, as can be seen in the preparation shown of one of the size of a walnut, which was removed by means of the snare from in front.

Again, the objection is offered that the snare introduced from in front

cannot grasp small growths situated high at the border of the choanae, which is incorrect, as also the objection that it does not snare the vegetations at their base but lower down. In the next place, experiment shows that a straight probe introduced from below into the nose and left to itself touches the upper border of the choanae; the same tendency is shown by the tube of the snare. It has to be purposely pressed down in order that the loop may come under the vegetations, and it can then be easily lifted into the fornix of the pharynx by a vigorous depression of the handle of the instrument. In this way I frequently removed flat hypertrophies of the pharyngeal tonsil lying in the vault of the fornix, and above the upper edge of the choanae.

The best proof that this method is at least not inferior to others is that I removed completely in 7 cases vegetations which previously skilled colleagues had been unable to eradicate wholly with forceps or ring knives.

Lastly, the objection that several sittings may be required is not borne out by statistics, since it was often only out of consideration for the anxiety of the parents that I had a separate sitting for each side, where one sitting would have sufficed for both sides, and in 66 cases one sitting alone was sufficient. In addition, it is well known that in other methods often several sittings are necessary. The objectors state also that the vegetations are removed, not as a whole, but in small pieces. That is correct, but in my cases the growths were chiefly papillary and pedunculated, and fell apart very easily, and, besides, the pieces were generally as large as hazel nuts. Further, this objection has little value, as the only question is the complete removal of the vegetations, whether it be in one or several pieces.

The advantages of the method lie particularly in its absolute freedom from danger, since with a snare introduced into the naso-pharynx from in front nothing can be seized except the vegetations. Next, the exceedingly slight degree of bleeding, the absence of reaction, the painlessness (this is confirmed by all the older patients), and the possibility of carrying it out without narcosis by means of simple cocaine anaesthesia. As assistant, usually the child's conductor is sufficient, who supports the head from behind, and it is only with very unruly children that it is necessary to wrap them in a sheet and have them held by one assistant while a second fixes the head. As after-treatment I order gargles of weak solutions of permanganate of potash, some of which are poured through the nose. In every case this method is the most protective, as I have assured myself, having only used other methods for comparison. The galvano-cauterization, or removal by means of the galvano-caustic snare, I have never made use of, as the first is very troublesome and takes a long time, the latter quite unnecessary, as the cold snare is always sufficient for removal, and both are dangerous on account of the effect of the heat upon the walls of the naso-pharynx, and especially upon the Eustachian tubes. Among forceps I tried those of Catti, Loewenstein, Michael and Jurasz. With them one twists and forces more than one cuts; there is considerable bleeding; the instrument has to be frequently introduced; the sittings have to be often repeated, and

there is a considerable amount of reaction. Trautmann's sharp spoon works better, but it has similar disadvantages. The best, in my opinion, is Gottstein's ring knife, still it is only thoroughly suitable for the soft papillary vegetations: the bleeding is considerable, and so is the reaction. Frequent introduction and numerous sittings are also often necessary.

On these grounds I have kept to the use of the cold snare through the nose, and I am so far satisfied that I never use for the removal of soft benign growths of the naso-pharynx instruments which frequently wound and tear the naso-pharyngeal mucous membrane considerably.

When this method was not practicable, I tried next a snare, with a bent loop passed through the mouth, or when on account of too great resistance that did not succeed. I used Gottstein's knife, which is on the whole very speedy and practicable, but which often misses the papilliform vegetations.

Finally, I would like to point to the fact that none of the instruments hitherto constructed seem quite satisfactory, because almost every practised specialist has a new one prepared for him.

REVIEW.

Politzer.—*Text-Book of the Diseases of the Ear and Adjacent Organs. For Students and Practitioners.* Translated by OSCAR DODD, M.D., Assistant Surgeon at the Illinois Charitable Eye and Ear Infirmary; Clinical Instructor of the Eye and Ear in the College of Physicians and Surgeons, Chicago. Edited by Sir WILLIAM DALEY, F.R.C.S., M.B. Cantab.: Consulting Aural Surgeon to St. George's Hospital. With 330 original illustrations. Baillière, Tindall and Cox. London, 1894.

Those who are familiar with the late Dr. Cassell's translation of the first edition of Prof. Politzer's encyclopædic work must have felt somewhat tantalized to know of subsequent German editions remaining untranslated, and they will welcome all the more gladly the long-wished-for advent of a more recent (the third) edition rendered into English. The anatomical section is almost a reproduction of what appeared in Dr. Cassell's translation, enhanced, however, by the addition of at least fourteen fresh illustrations. The physiological portion is amplified, among other notable additions being the account of Hansen and Bockendahl's, Pollak's, Secchi's, and Lucac's experiments on the action of the intra-tympanic muscles. The methods of examination are, as before, treated with the utmost practical minuteness, prominence being given to Delstanche's additions to our armamentarium for rarefying or condensing the air in the external meatus. The use of the voice as a test for hearing is still more strongly advocated and more thoroughly methodized, while stress is laid on the necessity for testing by means of tones of different pitch. Prof. Politzer's method of testing the permeability of the Eustachian tubes and the seat of the cause of deafness by means of a vibrating tuning-fork held under the nostril is a novelty (p. 135), but

familiar to those of our readers under whose notice it was brought in the report of the professor's visit to London. Testing for bone-conduction by means of the tuning-fork has been, as far as was necessary, modernized, and is most succinctly described. Weber's test is accorded its due limited value, namely, when the fork is heard distinctly louder in the affected ear. To Rinne's test, on the other hand, is given the prominence to which the observations of recent investigators, and notably of Bezold, have entitled it. In this section, it must be admitted that the writer or translator is less clear than usual, so that the tyro would have a difficulty in finding so good a definition of "negative" Rinne in the new (pp. 146, 147) as in the old edition (p. 693). The statement (p. 147) that "in old individuals "in which the duration of perception through the cranial bones is "shortened, Rinne's test often gives no positive result" is surely somewhat ambiguous. We have found that in old persons Rinne's test often gives a "positive" result, in spite of an amount of obstruction which in a young person would have been accompanied by a "negative" result. These unhappy terms, "positive" and "negative," have given rise to great confusion, and a better terminology is much required. The well-known Gellé's test (centripetal pressure) is considered of value "in certain "cases where the other tuning-fork tests give no certain result in severe "grades of deafness." The account of the "Method of Examining the Patient" is very suggestive, and the form of case-paper recommended—a great improvement on the excellent old one—is most complete.

The diseases of the external ear are somewhat more fully treated and partially rearranged. Antisepsis and early incision are advocated in furunculosis. In cases of exostosis, surgical removal is deprecated unless (1) there is extreme deafness in consequence of complete closure of the meatus by the exostosis, with, at the same time, deafness in the other ear; or (2) there is suppuration of the middle ear, the escape of pus from which is prevented by the tumour. Gouge and hammer are preferred to other instruments. In connection with the subject of foreign bodies, Zaufal's insistence on prompt operative interference in case of rise of temperature, combined with optic neuritis or choked disc, is quoted (p. 224).

Among the diseases of the middle ear, Prof. Politzer differentiates those of the membrana tympani, which may be either primary or secondary to affections of the tympanum or external meatus. The peculiar hæmorrhagic blisters occurring in influenzal otitis are described and figured. The diagnosis between acute myringitis and acute otitis media depends upon the absence of any noticeable decrease of hearing power, in spite of the striking changes in the appearance of the membrane, which are indistinguishable from those seen in the latter disease. The occurrence of such cases with "relatively normal condition of the "external meatus seems to justify the recognition of primary myringitis "as a separate affection, a distinction to which some writers do not "consider it entitled." The statement is made that traumatic ruptures of the membrane arising from condensation of air in the meatus from a blow on the ear are usually situated in the posterior portion of the membrane, but, singularly enough, in the three illustrations appended,

two are confined to the anterior half, and the other shows rupture in both halves. The "very broad, deep, breathing-sound in cases of traumatic rupture of the membrane, if the injury has befallen a normal ear," on inflation is contrasted with "the sharp hissing noise" in cases of perforation from disease of the middle ear. The greater degree of danger to the labyrinth when the membrane does not rupture is emphasized.

With diseases of the middle ear the author includes those of the Eustachian tube, considering catarrhs of the latter along with those of the tympanum, from which he does not consider they can be naturally dissociated. By "catarrhs" he understands, for convenience, those forms of inflammation of the mucous membrane "which run their course without significant inflammatory phenomena, and with a discharge of "sero-mucous exudation," as distinguished from those "which are accompanied by violent inflammatory phenomena, by formation of "muco-purulent or simply purulent secretion," and to which he limits the use of the term "inflammations." Hence he describes:—

I. Catarrh of the Middle Ear.

(a) The Secreting form of Middle Ear Catarrh.

(b) The Catarrhal Adhesive Processes in the Middle Ear (secondary to the former or of the primary sclerotic form).

II. The Muco-purulent Inflammations of the Mucous Membrane of the Middle Ear.

(a) Acute Inflammation of the Middle Ear.

(b) Acute Purulent Inflammation of the Middle Ear.

(c) Chronic Purulent Inflammation of the Middle Ear.

The differentiation between acute catarrh and acute inflammation of the middle ear depends upon the points, that in the former the membrana tympani is only slightly changed, being transparent, and only slightly, (if at all) injected, there is only moderate reaction in the tympanic mucous membrane, the exudation consists of clear serum or a transparent mucus, which is only slowly absorbed, and there is little or no constitutional reaction. In inflammation, on the other hand, the membrane is hyperæmic and covered with exudation, the cavity is greatly congested, the exudation consists of opaque muco-pus or pus, and is rapidly absorbed when the tube is made permeable, while the constitutional reaction is considerable. "Acute purulent inflammation" differs from "acute inflammation," in that "the inflammatory changes of the mucous membrane are much more intense, the exudation is more copious, and contains greater numbers of pus cells, and perforation of the membrana tympani takes place."

In reading the chapter on the "Catarrhal Adhesive Processes in the Middle Ear," it is necessary to give special attention to the statements referring to the insidious, often hereditary, interstitial inflammations of the lining membrane of the middle ear, which so often result in ankylosis of the stapes. Their clinical features are most fully described, but we are disposed to think they form so distinct a class as to call for consideration in a separate chapter.

The chapter on "Acute Purulent Inflammation of the Middle Ear"

is enriched by the addition of a full description of the influenzal forms of the disease, and the one on the Chronic Form, by a fuller and more definite account of the formation of cholesteatomata, primary and secondary, than appeared in the former edition. The diseases of the mastoid process are considered separately from those of the tympanum. The well-marked clinical, pathological and therapeutical difference between the forms of mastoiditis following acute and chronic median otitis respectively is accentuated by their being treated of in different sections. Great stress is laid upon the desirability of opening the superficial cells and leaving the antrum untouched in mastoiditis secondary to acute, and the reverse in that secondary to chronic suppuration of the middle ear. The methods and indications for opening the mastoid are well laid down, the former contra-indications—marked symptoms of cerebral or sinus affection—having no place now since such favourable results have been obtained from operating upon cranial abscess and the sinus transversus. The chiselling away of the posterior superior wall of the meatus, and laying free of the tympanic cavity, is introduced among the typical operations. A valuable diagram on page 520 gives a clear idea of the relation of the facial nerve to the posterior wall of the osseous meatus, an anatomical relation of vital importance, and not clearly described in our books.

The section on aural polypi is full of practical instruction, and inculcates the necessity of greater caution than operators usually practise. The remark that "extraction is indicated only in the case of those polypi whose origin in the external meatus has been ascertained without doubt," would, however, be more readily understood if for "extraction" were substituted the term "avulsion," which is evidently the meaning intended to be conveyed by the author. Galvano-cantherization is highly extolled, and great value is attached to the application of the strong liquor ferri perchloridi, or of a crystal of the salt to small polypi or granulations, as also to the alcohol treatment. Much medico-legal interest is attached to the remarks on injuries of the sound-conducting apparatus, and on ear disease in relation to life insurance, the rules in reference to the latter being clear and acceptable. Recognizing the vital importance of attention to the nose and naso-pharynx, the author gives a thoughtful though necessarily condensed account of the methods of examining and treating cases of disease of those parts.

The topographical relations of the central course of the auditory nerve, its nuclei, and its central continuations, given as described by Freud, are made much clearer than they were in the former edition. The intricacies of the diagnosis of the various forms of labyrinthine disease are handled with that caution which is begotten of a desire to face rather than ignore difficulties, and to trust to pathological facts rather than to clinical analogies and conjectures. The reader, if apt to be disheartened, will, however, be forced to recognize that the unavoidable obscurities are due to the nature of the subject, and not to the mode of treatment. We cannot too highly appreciate Prof. Politzer's work in the direction of the elucidation of this difficult part of otology. A continuance of studies on the same lines cannot fail to advance our knowledge to an

enormous degree. It is where the neurological element in otology asserts itself that the great difficulties set forth, if not cleared away, by the author come into evidence and show the wide grasp he has of his subject.

The translation is as a rule clear if not scholarly, and though, strange to say, no reference is made to it, a very large part is imported direct and word for word (errors included) from the former edition, for which we were indebted to the devoted labour of the late Dr. Patterson Cassells of Glasgow. There are many oddities of expression and singular errors in latinity which it is surprising should have escaped correction at the hands of such a master of literary style as Sir William Dalby. We know how difficult it is, when translating from a foreign language, to supply the most accurate and elegant English equivalent for the idea as well as the word. The reader may be staggered by a reference to an experiment by Breuer on page 606, in which it is stated that "he has proved by carefully opening "a semicircular canal in the deaf that chemical or thermal irritation, "or simple disturbance of the semicircular canal, suffices to produce the "disturbances of equilibrium." Obviously the German word "Tauben" has been translated as "deaf" instead of "pigeons."

Apart from these slight blemishes, which a table of errata would easily correct, the rendering of this masterly work into readable English is a service to British otologists, for which Dr. Dodd and Sir William Dalby are entitled to their sincere gratitude. The volume is much more convenient to hold than Dr. Cassells'—*experto crede*—and is, or ought to be by this time, in the hand of every student of the subject.

Dundas Grant.

Letter to the Editors.

THE TREATMENT OF MULTIPLE PAPILOMATA OF THE LARYNX IN CHILDREN.

THE opinions held as to the methods to be most recommended are at variance. We must certainly individualize here, and we cannot and dare not treat all cases in the same manner: but even as to the principal question, whether it is better to operate endo-laryngeally or surgically, or treat these cases in some other manner, there is no unanimity. It would, therefore, be of the greatest value to collect the opinions of the greatest number as a means of deciding as to the utility of the various methods employed. I, therefore, beg of all practitioners, surgeons, and laryngologists that they will supply me with full details of the cases they have had under their care, and to be kind enough to reply to the following questions:—

1. The age and sex of the child and the occupation of the father.
2. The symptoms (hoarseness, dyspnoea, etc.) and the laryngoscopic appearances.
3. The method and date of operation.

4. The result of the operation—as regards voice and breathing ; if death, the cause ; if recurrence, when ; if recovery, the date of the last examination.

5. Have these cases been already published ? If so, when and where ?

All practitioners who will assist me in this matter have my best thanks in anticipation for their kind co-operation.

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First Assistant at the University Polyclinic
for Diseases of the Throat and Nose.

Berlin, N.W.—Mittelst. 55.

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DIPHTHERIA AND PSEUDO-DIPHTHERIA.

A Report to the New York City Health Department on the Bacteriological Examination of 5611 Cases of Suspected Diphtheria, with the results of other Investigations upon the Diphtheria and Pseudo-Diphtheria Bacillus. From the Bacteriological Laboratory.

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AND

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Statistics of Bacteriological Examinations in Cases of Suspected Diphtheria.

FROM May 4th, 1893, to May 4th, 1894, there were 5611 cases of suspected diphtheria subjected to bacteriological examination. In 3255 of these the Loeffler diphtheria bacilli were found to be present, and these cases were thus proven to be true diphtheria. In 1540 no diphtheria bacilli were present in the cultures, and as these had been carefully made at an early period of the disease, the cases from which they were taken may be considered as proven not to have been true diphtheria. In 816 cases, although no diphtheria bacilli were found in the cultures, yet, either because they were made after the fourth day of the disease, or the exudate was imperfectly obtained from the throat, or the culture media had become contaminated, or was too dry, the cases from which the cultures were obtained, although probably not diphtheria, were considered to be of a doubtful nature, as far as the bacteriological examination was concerned.

Thus we find in 5611 cases of suspected diphtheria that about 58

per cent. were proven to be true, 27 per cent. to be false, or pseudo-diphtheria, and 15 per cent. to be of a somewhat doubtful character. It would probably be just to consider that 60 per cent. were true, and 40 per cent. were false diphtheria.

Sex and Age and Mortality in the Cases of True Diphtheria.

In a large percentage of the cases, in which the sex was determined, there were 54 per cent. females and 46 per cent. males, a fairly even division. The statistics reveal some interesting facts as to the influence of age upon the occurrence of true diphtheria and its mortality. The ages of persons attacked ranged between three weeks and seventy years. The number of cases increased with each twelve months of life up to the fourth, and then gradually diminished. The mortality was highest in the first two years of life, and then steadily diminished until adult life was reached, when it again slowly increased. The ages and mortality were determined in 1625 cases, and were as follows:—

Age.	No. Cases.	Mortality.	Age.	No. Cases.	No. Cases per year average.	Mortality.
1st 12 months...	24	45%	7th to 10th year	292	97 +	15%
2nd " ...	109		10th to 15th year	117	23 +	5%
3rd " ...	233		15th to 20th year	20	4	—
4th " ...	258		20th to 30th year	41	4 +	20%
5th " ...	192	33%	30th to 50th year	13	13/20	—
6th " ...	163					
7th " ...	163					

Age and Mortality in False or Pseudo-Diphtheria.

It has been the general rule of the Department to take no further cognizance of cases of false diphtheria after the culture has demonstrated the absence of the diphtheria bacilli.

In order, however, to compare the mortality and contagiousness of cases of false diphtheria with the true, 450 false cases were carefully investigated by sanitary inspectors detailed for this work. These cases comprised 300 occurring in the fall months, and 150 occurring in March and April. The cases were taken in consecutive order, and are believed to be average cases.

The ages were determined in 628 cases, and the mortality in 450 cases.

Age.	No. Cases.	Mortality all Cases.	Uncomplicated with scarlet fever.	Age.	No. Cases.	No. Cases per year average.	Mortality.
1st 12 months	10	6 %	5½ %	7th to 10th year	108	36	0
2nd " "	21			10th to 15th year	90	16	0
3rd " "	57			15th to 20th year	45	9	0
4th " "	74			20th to 30th year	75	7½	2 %
5th " "	43	2 %	0	30th to 50th year	30	1½	
6th " "	40			Over 50	2	—	
7th " "	45						

In the 450 cases investigated there were 42 in which scarlet fever existed as a complication, and of these four died. In the 408 uncomplicated cases there were seven deaths, or 1.7, per cent, as contrasted with 27 per cent. in true diphtheria.

Only two of these seven deaths occurred in persons over five years of age. One of these was a man of seventy years, who was suffering from a marked valvular lesion of the heart, and the other was in a young adult female who died of septicæmia.

The history in brief of the second case was as follows : Three weeks before death the disease began with a swelling of one tonsil and its surrounding tissues ; a week later the tonsil was incised, but no pus obtained ; about the incision a dirty brown pseudo-membrane formed. Later the tonsil and surrounding tissue became necrotic, and sloughed off, then the ulceration extended to the pharynx and the other tonsil, and was still progressing when the patient died of sepsis and exhaustion.

The five deaths in children under five years of age all occurred in cases in which the larynx was affected, and in three more or less broncho-pneumonia developed as a complication.

True and Pseudo-Diphtheria of the Larynx (Membranous Croup).

The statistics as to the location of the disease in the true and false cases is of especial interest. There were 286 of the cases examined in which the disease was entirely or chiefly confined to the larynx or bronchi ; of these 283 were in children, and three in adults. In the cultures of 229 of these 286 the characteristic Loeffler diphtheria bacilli were found, and the cases were thus proven to be true diphtheria. Of the 229 cases in which the Loeffler bacilli was found 167 showed no pseudo-membrane or exudate above the larynx, while in the remaining 62, although the larynx was mainly involved, there was also some membrane or exudate present on the tonsils or pharynx. In 57 out of 286 examined no diphtheria bacilli were found, but in 17 of these the cultures were unsatisfactory. Excluding the 17 cases, there were 40 in which the diphtheria bacilli were absent. The disease was confined to the larynx or bronchi in 27 of the 40, while more or less exudate or membrane was present on the tonsils or in the pharynx in 13.

We find, therefore, that of the cases of acute laryngitis in children which have been subjected to bacteriological examination in the laboratory of the Health Department during the past ten months, about 80 per cent. have proven to be undoubtedly cases of diphtheria, and of the remaining 20 per cent. only 14 per cent. were certainly not diphtheritic.

Not only have the bacteriological examinations shown that a large proportion of the cases of acute croupous laryngitis in children (commonly designated by the name membranous croup) are diphtheria, but the Department inspectors have frequently found that these cases were the origin of characteristic pharyngeal diphtheria.

Many experienced physicians still find difficulty in believing that cases in which the exudate or pseudo-membrane is entirely absent from the pharynx and tonsils are true diphtheria, and it is also difficult to persuade parents that such cases are diphtheria. For instance, a child,

aged five, subject to attacks of bronchitis and slight laryngitis, developed a croupy cough. For diagnostic purposes a culture was made, and the diphtheria bacilli found to be present. It was with the greatest difficulty that the parents could be made to consider the case a serious one, and to separate the children. Under suitable treatment, on the fifth day, the child seemed nearly recovered, and now the parents became sure it was not a case of diphtheria, stopped all precautions, allowed the child to go out, &c. A relapse followed, the laryngeal symptoms increased, and the child died in thirty-six hours of asphyxia, intubation being refused.

The comparatively small number of laryngeal cases examined is partially due to the fact that membranous croup has not been considered a contagious disease, and reports of such cases have not been required by the deputation, and partially due to the custom of the Department inspectors not to make cultures in cases which have been intubated, or which seem so sick that the family might think injury had been done by inserting the swab in the throat. The cases in which no cultures are made are treated as cases of true diphtheria.

The Clinical as contrasted with the Bacteriological Diagnosis.

Upon the blanks accompanying such "culture outfit" a space is left for a record of the clinical diagnosis made by the physician. Upon the blanks received from 1220 cases of true diphtheria, the physician's diagnosis was recorded. In 1011 of the 1220 the case was considered to be diphtheria, in 102 to be doubtful, and in 97 to be probably false. Upon the blanks received from 675 cases in which the diphtheria bacilli were absent, a diagnosis of true diphtheria was made in 50, the rest being all considered as doubtful.

The cases which present all the characteristic appearances of well-developed diphtheria regularly contain in the pseudo-membranes abundant diphtheria bacilli. For instance, in a case like the following a culture is not necessary to determine the diagnosis. A lad aged twelve was seized, two days before inspection, with a slight chill, and felt a soreness in the region of the tonsils, and began to have pain in swallowing. All symptoms had steadily increased. When seen, forty-eight hours after onset of disease, the boy seemed rather apathetic, and was constantly spitting. He said he did not feel much sick, but could not swallow, and found it difficult to breathe freely when lying down. The lymph nodes on right side of neck were swollen, as were also the surrounding tissues, so that the depression beneath the jaw was obliterated.

The tonsils and the margins of the tonsillar pillars were covered by a thin dirty grey adherent pseudo-membrane. The right side of the uvula and a portion of the soft palate was covered by a thin friable pseudo-membrane, which could be removed easily without leaving a bleeding surface.

The faucial pillars and the uvula were so swollen and œdematous that the posterior wall of the pharynx could not be seen. The nostrils and the larynx were free.

It is in the slightly developed cases that a culture is needed. In those

without cultures it is necessary to be governed more by the history of exposure than the appearance of the throat. In a family where an undoubted case of diphtheria existed any form of sore throat, with or without exudate, occurring either in a child or in an adult, would probably be a case of diphtheria, while a tonsillitis or pharyngitis, perhaps similar in appearance, occurring in a person who has not been exposed to diphtheria, would be in all probability a case of ordinary non-diphtheritic throat inflammation.

The Relation between the Size of the Bacillus and its Virulence.

Some investigators have believed that the degree of virulence possessed by the diphtheria bacilli could, to a certain extent, be judged by their length. The longest bacilli were supposed to be the most virulent, the medium less so, and the shortest little, if at all, virulent. By observing this characteristic, it was thought cultures might become helpful in prognosis. Very careful notes have been made on this point in the examinations of the bacteria from the original serum tubes in 1613 cases. The Loeffler bacilli in 1398 of these were of about the average size, and characteristically stained. In these there was a mortality of about twenty-six per cent. The bacilli in 82 cases were considerably longer than the average. In these there was a mortality of twenty-seven per cent. In 67 cases the Loeffler bacilli were distinctly shorter than the average, and in these there was a mortality of thirty-five per cent. In 66 cases the bacilli were short, not characteristic in shape, and evenly stained; many of them belonged to the class of pseudo-diphtheria bacilli. In these there was a mortality of only twelve per cent.

The results obtained from the examination of 1613 cultures in which this factor was carefully noted, therefore, indicate that in New York the great majority of cases of diphtheria yield in cultures bacilli of medium size, which are characteristic in shape and in manner of staining. In a moderate number the bacilli found are much longer, and in about an equal number they are much shorter. Both the clinical histories and the animal experiments showed that as long as in shape and staining the bacilli are characteristic, nothing as regards their virulence, either in men or animals, can be judged from their length. Those bacilli, on the other hand, which are short, and stain uniformly with methyl blue, usually prove to be of the pseudo-diphtheria type, and have no virulence in animals.

So many inquiries have been sent to the Department regarding the methods employed for the general bacteriological examinations of suspected cases of diphtheria, that it has been thought desirable to include in this report a condensed account of the new facts brought out in the bacteriological investigations on this subject, and together with a description of those characteristics of the diphtheria bacilli which must be known in making bacteriological examinations for diagnostic purposes.

It is hoped that with these additions this report may be of greater practical assistance to many who have begun or are about to begin similar work.

The Facts Developed in Successive Investigations, which have led to the belief that the Bacillus first described by Klebs and Loeffler is the Specific Cause of Diphtheria.

In the year 1883, bacilli, which were very peculiar and striking in appearance, were shown by Klebs¹ to be of constant occurrence in the pseudo-membranes from the throats of those dying of true epidemic diphtheria. One year later Loeffler² published the results of a very thorough and extensive series of investigations on this subject. He found the bacillus described by Klebs in most, but not in all, cases of throat inflammations which had been diagnosticated as diphtheria. He separated these bacilli from the other bacteria present, and obtained them in pure culture. When he inoculated these bacilli upon the abraded mucous membrane of susceptible animals, pseudo-membranes were produced, and frequently death followed. If a certain amount of a bouillon culture was injected subcutaneously into guinea pigs, death was caused with characteristic lesions. Loeffler's failure to find the bacilli in every case examined is now explained by the fact that certain varieties of pseudo-membranous inflammation, such as occur especially in scarlet fever, were then wrongly considered to be true diphtheria.

In 1887³, further studies by Loeffler added to the proof of the dependence of diphtheria upon the diphtheria bacilli. In 1888, D'Espine found the bacilli in 14 cases of characteristic diphtheria, and proved them to be absent in 24 cases of mild sore throats which, clinically, were believed not to be cases of diphtheria. In this same year, the first portion of the report of the results of the very important investigations of Roux⁴ and Yersin was published, and the dependence of diphtheria upon the diphtheria bacilli may be considered to have been established. Roux and Yersin found that the diphtheria bacilli were present in all characteristic cases of diphtheria, and that these bacilli possessed the same cultural and pathogenic qualities as those described by Loeffler. They found that when the bacilli were inoculated upon the healthy mucous membrane of the trachea of the rabbit, no result followed; but, if the inoculation was made on the abraded membrane, phenomena occurred which strikingly resembled those present in membranous laryngitis in man, *i.e.*, congestion of the mucous membrane followed by the formation of a pseudo-membrane, œdematous swelling of the tissues, and of the glands of the neck, dyspnœa, stridulous breathing, and asphyxia. Injections of cultures beneath the skin of rabbits and guinea pigs in sufficient quantity caused their death in from thirty-six hours to five days, the period varying according to the susceptibility of the animal, and the number and the virulence of the bacteria introduced. The same results followed the injections of filtered cultures, showing that it was the products formed by the bacilli which caused the general lesions.

Roux and Yersin were also able to produce in animals characteristic diphtheritic paralysis. They effected this in many cases where the inoculated animals did not succumb to a too rapid intoxication. Paralysis commenced in a pigeon three weeks after the inoculation of the pharynx, and after all membrane had disappeared and the animal seemed to have completely recovered. In rabbits the paralysis usually commenced in

the posterior extremities, and then gradually extended to the whole body, causing death by paralysis of the heart or respiration. In rare instances the muscles of the neck of the larynx were first paralyzed, and thus characteristic symptoms were caused. The authors conclude, "The occurrence of these paralyses, following the introduction of the bacilli of Klebs and Loeffler, completes the resemblance of the experimental disease to the natural malady, and establishes with certainty the specific rule of this bacillus."

Finally, the microscopical changes in the internal organs of animals dying of experimental diphtheria produced by the bacilli, have been shown by Welch and Flexner,¹³ and by Babes¹⁴ and others, to be essentially the same as those produced by diphtheria in man, and thus a still further proof is afforded of the specific rôle of this bacillus.

The results of the various observations detailed above have since been confirmed by a great number of combined clinical and bacteriological investigations, so that now all who have studied the bacteriology of diphtheria would agree with the following statement made by Welch¹⁵ in an address on diphtheria, viz., "All the conditions have been fulfilled for diphtheria which are necessary to the most rigid proof of the dependence of an infective disease upon a given micro-organism, viz., the constant presence of this organism in the lesions of the disease, the isolation of the organism in pure culture, the reproduction of the disease by inoculations of pure cultures, and similar distribution of the organism in the experimental and in the natural disease. To be in accord with these facts we must agree with Prudden⁶ that we are now justified in saying that the name diphtheria, or at least primary diphtheria, should be applied, and exclusively applied, to that acute infectious disease usually associated with a pseudo-membranous affection of the mucous membrane, which is primarily caused by the bacillus called the bacillus diphtheriæ of Loeffler."

Pseudo or False Diphtheria.

Under this general title are included all cases of pseudo-membranous or exudative inflammation of the mucous membranes in which the diphtheria bacillus is absent.

As has already been stated the thorough consideration of the bacteriology of this form of inflammation is to be reserved for a later report, but it is necessary to touch on a few points here.

Since Loeffler,⁷ in 1889, first described a class of pseudo-membranous inflammations of the throat in which the diphtheria bacilli were absent and cocci present, it has been established that a certain proportion of the inflammations of the respiratory mucous membranes, which closely resemble the less characteristic cases of diphtheria, are not due to the diphtheria bacilli but to cocci, especially to streptococci.

It has been found that streptococci are regularly present in the throat, at least in the throats of persons living in large cities, and that other forms of cocci, especially the pneumococci and staphylococci, are apt to be associated with them. These germs seem to live in the throat without creating any disturbance so long as the mucous membranes are healthy,

but under certain conditions when the mucous membrane has been injured by exposure to cold, or by the poison of scarlet fever, measles, or some other disease, the streptococci, alone or associated with other cocci, are able to attack the mucous membrane, and to cause an inflammation. This may be of any degree of intensity, from a simple inflammatory hyperæmia to an inflammation with the extensive production of pseudo-membrane or with ulceration. Such inflammations when associated with the formation of a pseudo-membrane are known as pseudo-diphtheria. The exudate or pseudo-membrane in pseudo-diphtheria is usually confined to the tonsils, but other portions such as the larynx, pharynx, and nostrils may be invaded.

It has been found that the percentage of mortality in these cases is far less than in diphtheria, and that the disease is seldom if ever communicated to others.

The Proportion of Cases of Suspected Diphtheria which upon Examination prove to be True Diphtheria.

As soon as careful investigation had demonstrated that it was possible, with proper precautions, to separate by bacteriological examination the cases of true from the cases of false diphtheria, large numbers of cases suspected to be diphtheria were examined bacteriologically. The reports from those hospitals in which all cases of diphtheria and of suspected diphtheria were examined are of especial interest as showing the proportion of cases of true to false diphtheria. The results from these hospitals are all the more valuable because the cases came from all parts of the various cities in which the respective hospitals were located, and hence special local conditions were not likely to greatly influence the general results obtained. Thus Baginsky,⁷ in Berlin, found the diphtheria bacilli in 120 out of 154 cases; Martin,⁸ in Paris, in 126 out of 200; Janson,⁹ in Switzerland, in 63 out of 100; Morse,¹⁰ in Boston, in 239 out of 400; and Park,¹¹ in New York, in 127 out of 244. Thus from 20 to 50 per cent. of the cases sent to diphtheria hospitals did not have diphtheria.

If we examine the reports of examinations made under some special conditions, as during an outbreak of some contagious disease in a children's hospital, we find the results may differ in a striking manner.

Thus, in 1889, Prudden¹² made bacteriological examinations of 24 fatal cases of pseudo-membranous inflammation of the tonsils, pharynx, and larynx. In none of these were the Loeffler bacilli found to be present. These cases occurred in two children's hospitals in New York, in which both scarlet fever and measles were at the time prevalent. During the past year we have examined the exudate from 46 fatal cases of suspected diphtheria occurring in these same institutions, and found the bacilli present in 44 of the same.

If scarlet fever and measles (but not true diphtheria) were prevailing in an institution, it is evident that the bacilli would be absent from the pseudo-membranes occasionally, occurring in the throat as a complication of these diseases.

The Mortality in True Diphtheria and in Pseudo-Diphtheria.

All observers have found that the mortality was far higher in those cases in which the diphtheria bacilli were present than in those in which they were absent. In true diphtheria the mortality has been found to vary from 25 per cent. to 70 per cent, while in pseudo-diphtheria it varies from 0 per cent. to 20 per cent.

The death rate in cases of pseudo-diphtheria occurring in hospitals averages far higher than the death rate in similar cases in the cities at large. The reason for this is chiefly to be found in the fact that quite a large proportion of such cases admitted to the hospitals have been removed there either because they were suffering from laryngeal obstruction or because the throat affection was complicated by some infectious disease. Nearly all fatal cases of pseudo-diphtheria belong to one or the other of these classes.

Collection of the Blood Serum, and its Preparation for Use in Cultures.

A covered glass jar which has been thoroughly cleansed with hot water is taken to the slaughter-house and filled with freshly-shed blood from a calf or sheep. The blood is received directly in the jar as it spurts from the cut in the throat of the animal. After wiping the edge of the jar, it is covered with the lid and set aside where it may stand quietly until the blood has thoroughly clotted. The jar is then carried to the laboratory and placed in an ice chest. If the jar containing the blood is carried about before the latter has clotted, very imperfect separation of the serum will take place. It is well to inspect the blood in the jar after it has been standing a few hours, and, if the clot is found adhering to the sides, to separate it by a rod. The blood having remained twenty-four hours on the ice, the serum which surrounds the clot is syphoned off by a rubber tube and mixed with one-third its quantity of nutrient beef broth, to which one per cent. glucose has been added. The broth is prepared as follows :—One pound of finely-chopped lean beef is allowed to soak in one litre of water in a cool place for at least twelve hours. The meat and fluid are now dumped into a cheese-cloth or towel, and the fluid squeezed out. To this solution one per cent. peptone, one per cent. of glucose, and one-half per cent. of common salt are added. It is well to test the reaction of the mixture, and, if it is found to be acid, to render it neutral by adding a few drops of a solution of caustic or carbonate of soda. The whole is now boiled for half an hour, and filtered through absorbent cotton or filter paper. If the broth is to be kept it should be placed in flasks and then sterilized. The Loeffler blood serum mixture when ready is poured into tubes, which should be about four inches in length, and two-thirds of an inch in diameter. These tubes should first be plugged with cotton, and sterilized by dry heat at 150° C. for one hour. Care should be taken in filling the tubes to avoid the formation of air bubbles, as they leave a permanently uneven surface when the serum has been coagulated by heat. To prevent this, the end of the pipette or funnel which contains the serum should be inserted well into the test tube. About two centimètres

are sufficient to each tube. The tubes, having been filled, are now to be coagulated and sterilized. The tubes are placed at the proper angle, and then kept for two hours at a temperature just below the boiling point. For this purpose a Koch serum coagulator or a double boiler serves best, though a steam sterilizer will suffice. If the latter is used, a wire frame must be arranged to hold the tubes at the proper inclination, and the degree of heat must be carefully watched, as otherwise the temperature may go too high, the serum actually boiled, and the culture medium thus spoiled. After sterilization by this process the tubes containing the sterile, solidified blood serum can be placed in covered tin boxes and kept for months. The serum prepared in this way is quite opaque and firm. A mixture of blood cells renders the serum darker, but it is not less useful.

The Swab for Inoculating Culture Tubes.

The swab to inoculate the serum is made as follows: A stiff, thin steel iron rod, six inches in length, is roughened at one end by a few blows of a hammer, and about this end a little absorbent cotton is firmly wound. Each swab is then placed in a separate glass tube, and the mouths of the tubes are plugged with cotton. The tubes and rods are then sterilized by dry heat at about 150° C. for one hour, and stored for future use. These cotton swabs have proved much more serviceable for making the inoculation than platinum wire needles, especially in young children and in laryngeal cases. It is easier to use the cotton swab in these cases, and it gathers up so much more material for the inoculation that it has seemed more reliable.

For convenience and safety in transportation "a culture outfit" has been devised which consists of a small wooden box containing a tube of blood serum, a tube holding a swab, and a record blank. These "culture outfits" may be carried or sent by messenger or express to any place desired, and are kept at stations scattered throughout the city for the free use of physicians.

Directions given Physicians and Department Inspectors for Inoculating the Tubes with the Exudate.

The patient is to be placed, when possible, in a good light, and, if a child, properly held. Taking the swab from its tube, the tongue is depressed with a spoon, and the swab is passed as clear as possible of the tongue, and rubbed gently but firmly against any visible membrane on the tonsils or pharynx, thus catching the exudate with its contained bacteria in its meshes. Immediately, without laying it down, it is inserted in the blood serum tube, and the portion of the swab which had previously been in contact with the exudate is rubbed a number of times back and forth over the whole surface of the serum. This, though thoroughly, is to be gently done, so as not to break the surface of the serum. Both tubes, their cotton plugs having been replaced, are put in the box and sent to the collecting station. From here they are taken by the collector to the laboratory and placed in the incubator, and there left for from twelve to fourteen hours, after which time they are ready for examination.

Where there is no visible membrane, but it is thought to be present in the nose or pharynx, the swab should be thoroughly rubbed over the mucous membrane of the pharynx and tonsils. In nasal cases, when possible, a culture should also be made from the nose. In little children, care must be taken not to use the swab when their throats contain food or vomited matter, as when this happens the bacterial examination is rendered more difficult. Under no conditions should inoculations be made shortly after the application of disinfectants (especially solutions of corrosive sublimate) to the throat. If any of these instructions have not been carried out, the fact should be carefully noted on the record blanks.

The Examination of Cultures.

The culture tubes which have been thus inoculated are kept in an incubator at 37° Cent. for twelve hours, and are then ready for examination. On inspection it will be seen that the surface of the blood serum is dotted with very numerous, just visible, colonies. At this time no diagnosis can be made from simple inspection. If, however, the serum is found liquefied, or shows other evidences of contamination, the examination will probably be unsatisfactory. A microscopical preparation is now prepared by placing a tiny drop of water upon a clean cover glass, and then a platinum needle is inserted in the tube, and quite a large number of colonies are swept from the surface of the culture medium. The bacteria adherent to the needle are washed off in the drop of water on the cover glass, smeared over its surface and dried in the air. The cover glass is then passed quickly through the flame of a Bunsen burner or alcohol lamp three times in the usual way, covered with a few drops of Loeffler's solution of alkaline methyl blue, and left without heating for ten minutes. The cover glass is then rinsed off in clean water, dried and mounted in balsam.

In the great majority of cases one of two pictures will be seen with the one-twelfth oil immersion lens: either an enormous number of characteristic Loeffler bacilli with a moderate number of cocci, or a pure culture of cocci mostly in pairs or short chains. In a few cases there will be an approximately even mixture of Loeffler bacilli and cocci, and in others a great excess of cocci. Besides these will be met occasionally preparations in which, with the cocci, there are bacilli resembling more or less the Loeffler bacilli. These bacilli, which belong to the pseudo-diphtheria bacilli, are especially frequent in cultures from the nose.

In not more than one case in twenty will there be any serious difficulty in making the diagnosis if the serum tube has been properly inoculated. In such a case another culture must be made.

An immediate diagnosis, without the use of cultures, is often possible. This is made by smearing a cover glass with a little exudate from the swab, drying, staining, and examining it microscopically. This examination, however, is much more difficult and the results more uncertain than when the covers are prepared from cultures. The bacilli from the membrane are usually less typical in appearance than those found in the cultures, and they are mixed with fibrin, pus, and epithelial cells; they

may also be very scanty in the parts reached by the swab, or we may meet with bacilli which closely resemble the Loeffler bacilli in appearance, but which differ greatly in growth. When in a smear containing mostly cocci a few of these doubtful bacilli are present, we are unable to certainly exclude the diagnosis of diphtheria. Although in certain cases this immediate examination may be of the greatest value, it is not a method suitable for general use.

The Diphtheria Bacillus.

When cover glass preparations made from the blood serum tubes are examined, the diphtheria bacilli are found to possess the following characteristics :—

The diameter of the bacilli varies from 0·3 to 0·8 millimetre and the length from 1·5 to 6·5 millimetres. They occur singly and in pairs and very infrequently in chains of three or four. The rods are straight or slightly curved, and usually are not uniformly cylindrical throughout their entire length, but are swollen at the ends, or pointed at the ends and swollen in the middle portion. Even from the same culture the different bacilli differ greatly in their size and shape. The two bacilli of a pair may lie with their long diameter in the same axis, or at an obtuse or an acute angle. The bacilli possess no spores, but have in them highly refractile bodies. They stain readily with the ordinary aniline dyes, and retain their colour after staining by Gram's method ; with an alkaline solution of methyl blue the bacilli, from blood serum cultures especially, and from other media less constantly, stain in an irregular and extremely characteristic way. The bacilli do not stain uniformly ; in their ends, or in their central portions, certain oval bodies stain much more intensely than the rest of the bacillus. Sometimes this highly stained body is thicker than the rest of the bacillus, again it is thinner, and surrounded by a more slightly stained portion. The bacilli seem to stain in this peculiar way at a certain period in their growth, so that only a portion of the bacilli taken from a culture at any one time will show the characteristic staining. In old cultures the bacilli frequently stain with great difficulty, and often not at all characteristically.

Growth on Blood Serum.

If we examine the growth of the diphtheria bacillus in pure culture on blood serum we shall find at the end of ten to twelve hours little colonies of bacilli, which appear as pearl-grey or whitish-grey slightly raised points. The colonies when separated from each other increase in forty-eight hours to a diameter of a quarter of an inch. Their borders are usually somewhat uneven. Those lying together will fuse into one mass, especially if the serum is rather moist. During the first twelve hours the colonies of the diphtheria bacilli about equal in size those of the streptococci, but after this time the diphtheria colonies become larger than those of the streptococci, nearly equalling those of the staphylococci. The diphtheria bacilli in their growth never liquefy the blood serum.

Growth of One per cent. Alkaline Glycerine Agar.

It is frequently desired to obtain the diphtheria bacilli in pure culture. This is most readily accomplished by removing with a platinum needle a portion of the mixed growth of bacteria in a serum tube, and lightly streaking it over the surface of the nutrient agar contained in a Petri dish.¹

Though the growth of the diphtheria bacilli upon agar is less certain and luxuriant than upon serum, the appearance of the colonies when examined under the microscope is more characteristic.

If the diphtheria colonies develop deep in the substance of the agar, they are usually round or oval, and, as a rule, present no extensions; but if near the surface, usually from one, but sometimes from both sides, they will spread out in an apron-like extension, which exceeds in extent the rest of the colony. When the colonies develop entirely on the surface, they are more or less coarsely granular, are nearly translucent, and usually have a darker centre. The edges are sometimes jagged, and frequently shade off into a delicate lace-like fringe; at other times the margins are more even, and the colonies are nearly circular. With a high-power lens the edges show the sprouting bacilli. The colonies are greyish or greyish-white by reflected light, and pure grey or with olive tint by transmitted light.

The growth of the diphtheria bacillus upon agar presents certain peculiarities which are of the utmost practical importance. While the bacilli from the majority of cases grow rather feebly, some grow luxuriantly. If a large number of the bacilli from a recent culture are implanted upon a properly prepared agar plate, a certain and fairly vigorous growth will always take place. If, however, the agar is inoculated with the exudate of a throat which contains but few Loeffler bacilli, no growth whatever of the bacilli may take place; while the tubes of coagulated blood serum inoculated with the same exudate contain them abundantly. Again, agar prepared from broth made from different specimens of beef, or to which different peptones have been added, varies somewhat as to its suitability for the growth of the bacilli. On account of this uncertainty of obtaining a growth by the inoculation of agar with a few bacilli, or with bacilli of diminished vigour, agar is a far less reliable material than blood serum for making cultures for diagnostic purposes, and is, therefore, not to be recommended. All agar should be tested by means of a pure culture of the diphtheria bacillus before being used experimentally.

Growth in Broth.

All the varieties of the Loeffler bacillus experimented with have grown in slightly alkaline broth, with or without the addition of one per cent. glucose. The characteristic growth is one in very fine grains. These

¹ The agar is prepared by adding one per cent. of agar to the required quantity of broth. This broth is prepared in the same way as that used in the blood serum mixture already described, except that it contains no glucose. The agar must be thoroughly dissolved in the broth, and to accomplish this it is necessary to boil the mixture for from three to six hours. Before filtering, sufficient alkali must be added to make the agar slightly but distinctly alkaline. Finally, six per cent. of glycerine is added and the mixture sterilized in flasks. When needed, it is melted and poured into sterilized Petri dishes in a thin layer.

grains deposit along the sides and bottom of the tube, leaving the broth nearly clear. In some, for twenty-four to forty-eight hours, there is a more or less diffuse cloudiness, and exceptionally a film forms over the surface of the broth. Upon shaking the tube, this film breaks up and slowly sinks to the bottom. All the varieties tested caused the alkaline broth to become acid, or, at least, distinctly less alkaline, within forty-eight hours.

Animal Inoculation as a Test of Virulence.

Animal experiments form the only reliable method of determining with absolute certainty the virulence of the diphtheria bacillus. For this purpose alkaline glucose bouillon cultures of forty-eight hours' growth were used for the subcutaneous inoculation of guinea pigs. The amount injected varied from a quarter to a half per cent. of their body weight. In the great majority of cases this amount caused death within seventy-two hours. Upon autopsy the characteristic lesions described by Loeffler are found, namely: at the seat of inoculation there is a greyish focus surrounded by an area of congestion; the subcutaneous tissues for an extensive area around are congested, and at times very œdematous, and at times but slightly so; the adjacent lymph nodes are swollen, and the serous cavities, especially the pleural, frequently contain an excess of fluid, usually clear, but at times turbid; the lungs are usually congested. If the organs are subjected to microscopical examinations the lesions, as described by Welch and Flexner,¹³ Babes¹⁴ and others, are found. There are numerous smaller and larger masses of necrotic cells, which are permeated by leucocytes. The heart and voluntary muscle fibres usually show degenerative changes. The number of leucocytes is increased in the blood. From the area surrounding the point of injection virulent bacilli may be obtained, but in distant areas and organs they are only occasionally found.

Bacilli, which in cultures and in animals have shown themselves to be characteristic, may be regarded as certainly true diphtheria bacilli, and as capable of producing diphtheria in man under favourable conditions.

A large portion of the daily work in the laboratory has consisted in the routine examination of the cultures received each day. Besides this, however, a number of important questions have been studied experimentally, of which the most important are the following:—

1. How much reliance can be placed upon the bacteriological diagnosis made from the examination of a culture inoculated with the throat secretion from a case of suspected diphtheria?
2. If there are found in cultures bacilli which possess the shape, size, and staining characteristics of the diphtheria bacillus, can they, without further cultural or animal experiments, be considered as virulent diphtheria bacilli, and if not, what is the liability of error?
3. What is the period of time during which virulent diphtheria bacilli remain in the throat after the disappearance of the exudate or pseudo-membrane?
4. What relation have the pseudo and the non-virulent diphtheria bacillus to the true virulent bacillus?

5. To what degree is pseudo-diphtheria communicable?
6. What are the means by which diphtheria is transmitted?

Results of Original Investigations. The Amount of Dependence which can be placed upon a Culture in making a Diagnosis.

During the first few months, in order to test the results of the examinations and to make the liability to error as slight as possible, the following plan was adopted :—

All cases which yielded no diphtheria bacilli were turned over to special inspectors, who made in every case, where possible, a second culture, and followed up the case for some time, even after its recovery.

By means of this check the bacteriologists of the Department were able more and more surely to decide how far they could base an absolute diagnosis upon a culture, especially one made by others. Many physicians, as well as the inspectors, gradually became so skilled that it was possible to rely certainly upon their results, while, on the other hand, caution was found to be necessary in accepting the inoculations of others, and here a second culture was requested.

After a year's trial, the following conclusions have been arrived at :— The examination by a competent bacteriologist of the bacterial growth in a blood serum tube which has been properly inoculated and kept for fourteen hours at the body temperature can be thoroughly relied upon in cases where there is visible membrane in the throat, if the culture is made during the period in which the membrane is forming, and no antiseptic, especially no mercurial solution, has lately been applied.

In cases in which the disease is confined to the larynx or bronchi, and where, therefore, there is no visible exudate against which the swab can be rubbed, surprisingly accurate results can be obtained from cultures, but in a certain proportion of cases no diphtheria bacilli will be found in the first culture, and yet will be abundantly present in the later ones. We believe, therefore, that absolute reliance for a diagnosis cannot be placed upon a single culture from the pharynx in purely laryngeal cases. The apparent mistakes have, however, been few. In nasal diphtheria it is possible to obtain negative results from a culture made from the throat, and yet the bacilli be found in cultures from the nose. In making a diagnosis from a culture it is essential to know the duration of the disease in the case from which it was made, for, although bacilli may remain present and alive in some throats for a surprising length of time, nevertheless, it is important to remember that they may vanish early and suddenly, and that, therefore, the cultures cannot be certainly relied upon after the membrane begins to disappear.

The use of antiseptics shortly before making the inoculation of the tube may render the culture useless for diagnosis. It has been found in a few instances that a culture made from a case of diphtheria shortly after a thorough irrigation with a 1-4000 solution of bichloride of mercury gave no diphtheria bacilli, though one made just before and one made some time later gave them abundantly. A curious fact is that under such circumstances a vigorous growth of other organisms may take place.

The above conclusions are true only when the inoculations have been

properly made, and in judging cultures received from physicians in general the greatest care must be taken. Some are made carelessly, and some evidently without taking the pains to even read the instructions, or to glance at the condition of the coagulated serum in the tube. If, therefore, when no diphtheria bacilli are found, the bacterial growth is scanty, the media dry or contaminated, or the inoculation in any way faulty, the case must be referred back for another culture. The second culture in these cases not infrequently contains the bacilli where the first did not.

The absence of the bacilli in a culture proves the case to be one of false diphtheria only when it has been possible to make it under the proper conditions.

The Virulence of Bacilli in Cases of suspected Diphtheria.

Since it is the custom in the laboratory of the Health Department to make a bacteriological diagnosis in suspected cases of diphtheria, from the examination of the growth upon the original blood serum tube without waiting for further cultural or animal experiments, it is of the greatest practical importance to ascertain to what extent bacilli appearing upon the serum in every way characteristic of the diphtheria bacilli can be assumed to be virulent.

To test the virulence of bacilli, it is necessary to obtain them in pure culture, for otherwise it would be impossible to determine whether the changes produced in the inoculated animal were due to the supposed diphtheria bacilli or to other micro-organisms injected with it. It is still further necessary to grow the bacilli in proper media, and to inoculate a susceptible animal at the period when the growth of the bacilli in the media has reached its maximum. It is only when these precautions have been followed that accurate and positive results will be obtained. The present almost uniform practice is to inoculate half-grown guinea-pigs with from a quarter to a half per cent. of their body weight of a forty-eight hours' culture of the bacilli grown at 37° Cent. in nutrient or glucose alkaline broth. It is not safe to decide that because the growth derived from one bacillus is not virulent, all the bacilli from that throat are not virulent. The cultures from several bacilli must be tried. The majority of those who have inoculated bacilli derived from pseudo-membranes, and possessing the characteristics of the Loeffler bacilli found, as Loeffler did, that they were always virulent. The researches of Hofmann,¹⁵ Beck,¹⁶ and others, showing that in a certain number of healthy throats there were bacilli which closely resembled the Loeffler bacillus and yet were not virulent, stimulated others to subject the bacilli from large numbers of cases of suspected diphtheria to the test of animal inoculation.

In 1890, Ronx and Yersin⁴ published the results of some examinations as to the virulence of the bacilli obtained from one hundred cases of diphtheria. Fifty-five of these were fatal cases, and in all of them virulent bacilli were found, although in a few they found, together with many virulent bacilli, a few non-virulent ones. Among the forty-five cases which recovered, many were very mild, and in ten of them they

found no bacilli of sufficient virulence to cause the death of a guinea pig, when injected in a moderate amount. From all of them, however, they obtained bacilli capable of causing inflammation in the guinea-pig at the point of injection. This varied from extensive necrosis to slight, transient œdema. From further experiments, they proved that similar bacilli were capable, under proper conditions, of regaining their virulence. They further showed that in these milder cases, among many non-virulent or slightly virulent bacilli, there were usually a few virulent ones; therefore they believe that in most of these ten cases fully virulent bacilli may have been present in the throat with the slightly virulent ones, which by chance were used for the inoculations. In similar investigations, carried on in a different locality, somewhat different results have been obtained. Escherich¹⁷ was unable to obtain from a large number of diphtheria cases studied any bacilli having the characteristics of the Loeffler bacillus which were not virulent, and only a few which, in injections of a quarter per cent. of the body weight of a forty-eight hour bouillon culture, did not kill guinea-pigs within forty-eight hours. Koplik, in testing the virulence of bacilli from mild cases of tonsillar diphtheria, found them in every case fully virulent.

Prudden, in eleven cases of diphtheria, and Welch and Abbott in eight, found the bacilli in every case fully virulent. In a later investigation, in which a large number of healthy and slightly inflamed throats were examined, Abbott found, in the cultures from three, bacilli resembling the Klebs-Loeffler bacilli, but lacking virulence. These will be considered bacteriologically in connection with the pseudo-diphtheria bacilli, but the cases are of interest in the present consideration of the virulence of bacilli obtained from throats in which inflammatory lesions have appeared, which more or less resemble diphtheria.

Case 1 : Adult, aged fifty-nine. While in hospital developed a laryngitis and pharyngitis. The uvula, tonsils, and faucial pillars became swollen and œdematous, of an intense crimson-red colour, and covered with a thin, greyish-white, slightly adherent exudate. In five days the patient completely recovered. Bacteriological examination showed abundant, apparently characteristic, diphtheria bacilli, which, when inoculated, proved not to be virulent.

Case 2 : Similar lesions to last; well on ninth day. Bacteriological examination—abundant bacilli, in appearance similar to Klebs-Loeffler bacillus, but not virulent.

Case 3 : Girl, aged eleven years. Acute tonsillitis, with small white plug in one crypt. Quick recovery. Bacteriological examination—apparently characteristic Loeffler bacilli, but not virulent.

It must remain a matter of doubt whether some colonies from these cases would have been found to possess virulence if more had been tested as to this characteristic. These cases, as well as those of Roux and Yersin, show that now and then the bacilli from suspicious cases have little or no virulence.

In order to determine the virulence of the bacilli obtained in the ordinary routine examinations from suspected cases of diphtheria, blood serum cultures from 25 cases were selected, in which bacilli were found

in appearance characteristic of the virulent diphtheria bacilli. Nineteen of these comprised the total number of cultures containing Loeffler bacilli received during one day. These cultures were selected without knowledge of the severity of the case from which they were obtained, and were used for experiments on animals. From twenty of these, the Loeffler bacillus was isolated in pure culture, and inoculated into guinea pigs with results as stated in the following table. From the remaining five it was found impracticable to obtain the Loeffler bacillus in pure cultures, on account of the presence in relatively large number of other more rapidly growing organisms. Experimental work on these was therefore discontinued.

Virulence of the Bacilli found in Twenty Cases of Throat Inflammations of such a character as to arouse a suspicion of the existence of Diphtheria.

	Severity.	Weight of Guinea Pig. Gms.	Amount of culture injected. c.c.	Duration of life after inoculation.	Persistence of Loeffler bacillus after recovery of patient.
1	Very mild case; sick only 4 or 5 days	485	2	40 hours	14-19 days
2	Subsequently contracted scarlet fever	305	1	12 days	<i>Note.</i> — Pig previously inoculated with non-virulent culture.
3	Mild case.....	350	1	45 hours	24-32 days
4	Mild case.....	900	3	40 hours	
5	Diag. — Char. follicular tonsillitis with history of exposure to diphtheria	405	1	40 hours	6 days
6	Very mild case; culture taken after disappearance of membrane	430	1.5	40 hours	13 days
7	Very mild case.....	410	1.5	40 hours	
8	Fatal case, and cause of severe case in mother	435	1.33	40 hours	P. 16 days
9	Mild case.....	390	1.33	40 hours	P. 38 41 days
10	Mild case; adult; never in bed	210	0.5	50 hours	P. 44 days
11	Removed to diphtheria hospital; severe case	220	0.5	40 hours	
12	Rather mild case.....	620	3.33	25 hours	P. 42 days
13	Very mild case.....	479	2	40 hours	P. 20-24 days
14	Fatal case; croup	675	1.5	40 hours	
15	Fairly severe case, followed by measles	443	1.33	40 hours	P. 15-23 days
16	Moderately severe case ...	435	1.33	4 days	P. 15 19 days
17	Moderately severe case ...	510	1.66	40 hours	
18	Fatal case; croup	475	1.5	40 hours	
19	Very mild case.....	500	1.66	40 hours	
20	Contracted from a mild case; no membrane present	250	1	40 hours	

We find, therefore, that the bacilli obtained from twenty cases of suspected diphtheria, two-thirds of which were very mild cases, proved

in every case to be virulent, and in all but three fully so. If these results are considered in connection with those obtained by Koplik and Prudden in New York, as well as those obtained by other American and European observers, it is possible, without making animal inoculation, to state when, in a case of throat inflammation suspected to be diphtheria, bacilli are found in the cultures possessing the morphological and cultural characteristics of the Loeffler bacilli that the bacilli are in all probability virulent, viz., they are capable under the proper conditions of causing diphtheria in others. Further, it should be stated, as shown by Roux and Versin, and as confirmed by others and by ourselves, that the absence of virulence in a culture made from one bacillus is not sufficient to prove that cultures from other bacilli from the same case would not be virulent.

In three of the above cases the cultures from the first colony selected were not virulent, while from others they were fully so.

The Length of Time during which the Diphtheria Bacillus Persists in the Throat after the Disappearance of the Membrane, and its Virulence in these Convalescent Cases.

If a piece of membrane is removed from a throat during the period of invasion of diphtheria, and examined microscopically or by cultures, the presence of abundant diphtheria bacilli will be noted. If, a few days later, when the membrane has begun to loosen, another bit be examined the diphtheria bacilli will be found to be partly or, at times, wholly replaced by other micro-organisms, mostly cocci. If, several days after the disappearance of the membrane, cultures be made from the mucus of the throat, it will be found that the bacilli of diphtheria in a majority of cases will have disappeared from the throat. This rule is not, however, without many exceptions, for it will be frequently found that days after the complete disappearance of the membrane, and after the return of the throat to a healthy condition, fully virulent bacilli linger in the throat.

If we examine the researches of others we find the following facts :—

Severity of Disease.		Length of time during which the virulent bacilli persisted after the disappearance of the exudate.	Results obtained from the Inoculation of Guinea Pigs.
ROUX & VERSIN :—			
1	Mild case	3 days	Guinea pig died—24 hours.
2	Mild case	3 days	Fully virulent. Killed in a few hours.
3	Severe laryngeal case	11 days	Guinea pig died in 3 days.
4	Severe case	14 days	Guinea pig. Fully virulent.
5	Mild case	9 days	Some colonies virulent, some not virulent. For one week more, only non-virulent colonies.
6	Mild case	7 days	Virulent and non-virulent colonies. For 4 days more only non-virulent found.

	Severity of Disease.	Length of time during which the virulent bacilli persisted after the disappearance of the exudate.	Results obtained from the Inoculation of Guinea Pigs.
7	ROUX & YERSIN :— Laryngeal case.....	15 days	On 12th day, all virulent. On 15th, some not virulent.
8	Severe case	2 months	Produced a slight local cedema only when injected into guinea pigs.
9	KOPLIK :— Mild case	14 days	Fully virulent.
10	Mild case	7 days	Virulent : a week later the bacilli obtained were not virulent.
11	LOEFFLER :— Moderate case	8 days	Fully virulent (this was twenty-fourth day of disease).

ESCHERICH :—In a number of cases the Loeffler bacilli were found to persist after the disappearance of the membrane. In all of these the bacilli were as virulent as those obtained at the height of the disease.

MORSE found in twenty-five cases that the average length of time the Loeffler bacillus remained in the throat after the disappearance of the membrane was ten days.

The average duration was the same for both nose and throat, although in some cases the bacilli were found in the throat much longer than in the nose, and *vice versa*. The bacilli disappeared in one case the day after the throat was clear, in another three days after, and in another four days after. The longest periods during which they persisted were twenty-two and thirty-seven days. The bacilli were tested from only one case, and these were fully virulent ten days after the disappearance of the membrane from the throat.

TOMHESEN found virulent diphtheria bacilli in the throats of twenty-four out of forty-six patients at the time of their discharge from the hospital. The majority were children between six and twelve years. The following table gives the length of time after convalescence that the diphtheria bacilli were found :—

Severity of Case.	Number of Cases.	Duration of bacilli after disappearance of membrane.
Mild	1	4
Moderate	5	4
„	4	5
„	4	6
Mild	1	8
Moderate	1	8
„	1	9
Severe	1	9
Moderate	1	10
Mild	1	10
Moderate	1	11
Severe	1	16
Moderate	1	22
„	1	31
—	24	

In the twenty-two in which the bacilli were not found the length of stay in hospital of the patients after convalescence was about the same. His studies indicated that the existence of throat lesions rendered the conditions more favourable for the persistence of bacilli. The virulence of the bacilli was proven in nineteen out of the twenty-four. In sixteen cases the guinea pigs died within a period of fifty hours, and the autopsies showed typical lesions: in two local necrosis developed, followed by death in one animal and recovery in the other. In the last case the animal developed paralysis five weeks after the local symptoms had disappeared. From these results he draws the following conclusions:—

In nineteen out of the twenty-four persistent cases the Loeffler bacilli proved virulent, and the probability is that they were also virulent in the five not tested. In other words, one-half of the patients who are allowed to leave the hospital under the usual conditions carry virulent bacilli in their throats, and are capable of giving diphtheria to others. Clinical investigation alone can decide the frequency with which these convalescent cases infect others. This must be carried on with great caution. In the twenty-four investigated by Tobiesen he excluded those where numerous cases had occurred in the house besides the ones under investigation. Among those remaining he discovered one where the convalescent child was the almost certain cause of diphtheria in another.

In order to test the virulence of the bacilli in the throats of convalescent cases, they were obtained in pure culture from the healthy throats of thirteen convalescent diphtheria cases, and used for the inoculation of guinea pigs. The following table gives the results of these experiments.

Case No.	Severity.	Bacilli persistent after recovery for	VIRULENCE.			Persistence from inception of disease.
			Weight guinea pig gms.	Amount injected.	Life of guinea pig after injection.	
1 (1300)	App. severe case but very quick recovery	8 days	392	1.33 c.c.	60-70 hrs.	13-17 days
2 (527)	Mild case	10 days	250	0.5 c.c.	8 days	12-19 days
3 (1358)	„	12 days	290	1.25 c.c.	11 days	(?)
4 (956)	Severe case.....	18 days	229	1 c.c.	9 days	21-30 days
5 (685)	Moderate case..	6 days	549	1.25 c.c.	14 days	10-22 days
6 (909)	Mild case	33 days	220	1 c.c.	—	
			(Extensive necrosis with final recovery)			
7 (1.13)	Very mild case..	12 days	440	1.5 c.c.	About 40 hrs.	14-22 days
8 (R. Weed)	Mild case	8 days	310	2 c.c.	C. 40 hrs.	16-20 days
10 (1.19)	Very mild case..	25 days	505	1.66 c.c.	C. 40 hrs.	30 (?)
11 (1.20)	Very mild case (nasal)	10 days	253	2 c.c.	C. 40 hrs.	10 (?)
12 (1.21)	Lesion. Brother had mild case	6 days	490	1.66 c.c.	C. 40 hrs.	24 (?)
13 (1442)	Mild case	8 days	450	1.33 c.c.	C. 40 hrs.	13-20 days
14 (1.23)	Recovered	12 days	367	1.33 c.c.	C. 40 hrs.	19 days
15 (1.24)	Fairly severe case	26 days	347	1.33 c.c.	C. 5 days	35-44 days

The cultures, from which the bacilli were taken in each case to test the virulence, were usually the last or next to the last in which the bacill

were found to be present. The results in these fifteen cases, as well as those before recorded by others, prove conclusively that the bacilli, which in a certain proportion of cases persist in the throat after an attack of diphtheria, are always virulent for some time. In the exceptional cases, in which the bacilli persist for a very long time, they are found occasionally to lose their virulence a few days before their final disappearance, while in other cases they retain their virulence to the end. That the cases themselves do not seem so liable to spread diphtheria is probably largely because of the relatively small number of bacilli present in the convalescent throats as compared with those showing the lesions of diphtheria.

During the last six months completed observations have been made in 605 cases as to the length of time during which the Loeffler bacilli persist in cases of diphtheria. In these cases cultures were made at the beginning of the disease, and then again at short intervals after the complete disappearance of the exudate, until the throat was found to be free of diphtheria bacilli. The custom was to make the second culture three days after the complete disappearance of the membrane, and then to repeat them when necessary about every fourth or fifth day. In 304 of these 605 cases the diphtheria bacilli disappeared within three days after the complete disappearance of the exudate. In 301 cases the diphtheria bacilli persisted for a longer time, viz., in 176 cases, for seven days; in 64 cases, for twelve days; in 36 cases, for fifteen days; in 12 cases, for three weeks; in 4 cases, for four weeks; and in 4 cases, for five weeks after the time when the exudate had to all appearances completely disappeared from the upper air passages.

On account of the length of this report the bacteriology of pseudo-diphtheria will be largely left for a special report to be published later.

The Pseudo-Diphtheria Bacillus and its Relation to the Diphtheria Bacillus.

In 1888 Hofmann published the results of the bacteriological examinations of a number of diseased and healthy throats, which for a time threw doubt upon the specific character of the Loeffler diphtheria bacillus. Further research has entirely dispelled the objections which his discoveries seemed to make, but the results of these studies, and of similar ones, are of such practical importance in relation to the bacteriological diagnosis of cases of suspected diphtheria, that a detailed account of the work of others, as well as that of the Health Department, will be presented.

Hofmann confirmed Loeffler's results, in that he found the virulent bacillus in all of eight cases of true diphtheria, but in further search he was surprised to find in the throats of 26 out of 45 persons, none of whom were suffering from diphtheria, a bacillus which very closely resembled the Loeffler bacillus. Some of these persons were suffering from scarlet fever, measles, or some other disease, while many were entirely healthy. The bacilli from a number of these cases were obtained in pure culture, and inoculated into animals. The majority had no virulence whatever. The bacilli from the different cases varied somewhat in their characteristics. Some in appearance, manner of staining, and growth on media seemed identical with the Loeffler bacillus, while others pre-

nted slight but constant differences. Between the extremes were many gradations.

Those of the bacilli which did not possess all the characteristics of the virulent bacillus differed in the following respects. The bacilli were shorter and thicker, and more uniform in size. On agar they grew in whiter and thicker colonies, whose circumference was more circular and less notched. They also grew at a lower temperature than the virulent bacilli (20°, 22° C.).

Hofmann was undecided whether all of these bacilli were really *Loefer* diphtheria bacilli which had lost their virulence, or whether they were a different species of bacteria, and of a saprophytic nature. He was also undecided whether even among these non-virulent bacilli there might not be included different species. Hofmann's death prevented further attempts on his part to solve this problem, and different investigators since that time have been divided in their opinions; some taking the view that these bacilli were derived from true *Loefer* bacilli, having merely lost their virulence; others, that they were a different species, having no connection with the *Loefer* bacillus; and still others consider the matter as undecided. That we may be better able to consider the nature of these bacilli we will examine carefully the results of two important investigations, those of Roux and Yersin, upholding the identity of the pseudo and true diphtheria bacilli, and those of Escherich, maintaining their diversity.

Roux and Yersin found in a hospital for children in Paris, where cases of diphtheria occurred from time to time, that 15 out of 45 children contained in their healthy throats non-virulent bacilli resembling the *Loefer* bacillus. In a village in France, by the coast, where no diphtheria had been present for a long time, they made cultures from the healthy throats of 59 children living in a school. In 26 of these non-virulent bacilli were found.

In an examination of the throats of the attendants in a diphtheria hospital, non-virulent bacilli were found once. Thus in 114 healthy throats the non-virulent bacilli were found 42 times. In all of these throats the bacilli were present in very small numbers. They found these same bacilli twice in six children with mild sore throats, and five times in seven children sick with measles. It should be noted that these examinations were made chiefly in a children's hospital and in a children's school, in both of which the children were confined together for considerable periods of time, and the direct transmission of these bacilli from one throat to another would be likely to occur. The unusually large percentage of children in which they were found might thus be accounted for.

The bacilli found, when studied in pure culture, differed somewhat from each other. The majority were identical in all their characteristics with the *Loefer* bacillus, except for their lack of virulence. The minority resembled those described by Hofmann, being shorter and thicker, and growing at a lower temperature than the characteristic forms. They made an important observation, showing that the non-virulent bacilli, when grown in bouillon, caused the same changes in the reaction as the virulent forms—namely, from alkaline to acid in 48 to 72 hours, and later, back again to alkaline in the course of some weeks. These changes were

found to occur even more rapidly in the cultures of the non-virulent bacilli. They regarded the occasional slight differences in growth, shape, and staining as too slight and inconstant to separate the virulent from the non-virulent bacilli. Animal experiments alone sufficed to determine the question of virulence, and they regarded as arbitrary a division founded upon the reaction to inoculation of the guinea pig; since they found that bacilli from cases of diphtheria may possess every degree of virulence, from those which cause death within twenty-four hours to those which cause only a temporary œdema. With these variations it is a difficult matter to determine what should be the proper line of division between the virulent and the non-virulent bacilli.

To fully prove that these bacilli belong to the same species, they believe it is necessary to derive non-virulent bacilli from the virulent ones, and to give virulence to those entirely lacking it.

They found that it was possible to produce an attenuation of the virulence of the bacilli in a number of ways. For instance, if a current of sterile air is kept passing through a broth culture of diphtheria bacilli, maintained at a temperature of $39\frac{1}{2}^{\circ}$ C., after about two weeks some of the bacilli begin to lose their virulence, and at the end of about four weeks all of the bacilli have lost all of their virulence and produce non-virulent cultures. A little later the bacilli remaining in the culture die.

They also found that if from time to time cultures were made from dried bits of membrane, a period finally came when the bacilli, although alive, had become non-virulent. Thus they had fulfilled the first condition.

The attempt to restore to bacilli the virulence which they had entirely lost was not so successful. They found it possible to greatly increase the virulence of bacilli by injecting them together with a virulent culture of the streptococcus of erysipelas. The bacilli obtained from animals which had succumbed to this double inoculation were found to have fully regained their virulence. They were unable, on the other hand, to give virulence to those bacilli which had been artificially attenuated so completely that they possessed no virulence whatever, or to those which had none originally when obtained from the throat. Thus, of the two proofs necessary to establish the identity of the virulent and non-virulent forms, they had obtained the first fully, the second only partially.

As additional proof of the identity of the virulent and non-virulent bacilli, they brought forward the fact that they found the latter more frequently in patients recently convalescent from true diphtheria than in those who had never had the disease, and that the bacilli which had artificially been deprived of their virulence frequently were changed in other respects, so as to resemble in all ways the bacilli which were originally lacking in virulence. From their studies they concluded that the non-virulent and virulent bacilli were one and the *same* form of bacteria.

If we now turn to the work of Escherich, we find an able presentation of the view that the virulent and non-virulent bacilli are *different* varieties of bacteria.

He first lays stress on the methods to be employed in testing the virulence. He advises that the animal inoculations be made always from bouillon cultures, which have been grown for forty-eight hours at $37\frac{1}{2}^{\circ}$ C., and that the amount of the culture be regulated by the size

of the animal. With these precautions he found the bacilli from every case of diphtheria examined to be fully virulent, and in a few cases, where he obtained characteristic bacilli from the healthy throats of persons exposed to diphtheria, he found them also to be virulent.

Escherich did indeed find in a moderate number of throats of persons not suffering from diphtheria a bacillus similar to those described by Hofmann. Thus in Munich he found this non-virulent bacillus in two throats out of 70, and in Graz in 11 out of 250, or 13 times in 320 cases. These bacilli, however, all possessed certain cultural and morphological characteristics which were sufficient to separate them from the virulent bacilli. They were, as in some described by Hofmann, plumper and shorter than the Loeffler bacilli, and more uniform in size. The growth on agar was more luxuriant and whiter than is the case with the diphtheria bacilli. He noticed two new points of difference which seemed to him important. The pseudo-diphtheria bacilli, when spread on a cover glass, lie in parallel rows, while the diphtheria bacilli lie at every angle and in the most varied positions. The second difference was still more marked. He found, as had all others who had noticed this point, that the bacilli in their growth in alkaline bouillon changed the reaction of the bouillon to acid in the course of forty-eight hours. The amount of acid formed differed in different cultures, and had no relation to the degree of virulence. He then noticed that the pseudo-diphtheria bacilli always made the bouillon more alkaline instead of acid. Therefore, if at the end of forty-eight hours litmus was added to the different bouillon cultures it turned red in the virulent ones, and blue in the pseudo-diphtheritic non-virulent ones. Although this will be referred to again, it should be noticed that this difference in reaction was not found by Roux and Yersin in the cultures of non-virulent bacilli tested by them.

Escherich, in conclusion, states his position as follows:—"Since we have found constant cultural differences between the true and the pseudo-diphtheria bacilli we can give the pseudo-diphtheria bacilli no diagnostic value. We do not find it to be a frequent inhabitant of the mouth. Chronic throat inflammations and measles seem to render the throat more liable to its invasion."

He says, in referring to the views of Roux and those who agree with him, that if we believed in the common transformation of a non-virulent bacillus, frequently inhabiting the mouth, into a virulent bacillus, our hopes of combating the spread of the contagion of diphtheria would be greatly diminished. We should then be compelled to attempt to isolate many healthy persons, and we should find it far more difficult to render a diagnosis in diphtheria by means of bacterial cultures. He did not find, as Roux and Yersin and Fraenkel had, that it was possible to determine from the abundance of the colonies of bacilli present whether they were composed of virulent or non-virulent bacilli.

If we review the literature of this subject we find that some investigators have adopted views similar to those of Roux and Yersin, others to those of Escherich, and still others have been forced to content themselves with the position of Hofmann, viz., that we are not yet in a position to affirm whether all these bacilli are of one or of different species of bacteria.

Up to the present time the results, so far as they are known to the writers, are given in the following table:—

	Morphology.	Growth in Bouillon and Reaction.	Growth on Blood Serum.	Growth on Agar.	Frequency met with.	Opinion as to the Nature of the Bacilli.
VON HOFMANN.	Some bacilli identical with those of Loeffler, others were shorter, thicker, and more uniform in size	Similar to virulent.....	Sometimes identical with Loeffler bacilli; again found in larger and somewhat whiter colonies	Grows more luxuriantly, and spreads more on the surface. May become of a dirty brown colour in central part of colonies	In 45 throats, comprising some healthy and some the seat of non-diphtheritic inflammations, they were found in 26	Is doubtful whether these non-virulent bacilli belong to the same species as the virulent diphtheria bacilli, or whether they are of a different species
LOEFFLER	Somewhat larger than virulent bacilli, and more tendency to produce swollen ends	Similar to virulent.....	Similar to virulent.....	Colonies had less jagged edges and were of a whiter hue	Once with virulent bacilli from a case of diphtheria	Believes them to be of a different species, but only to be separated by animal cultures
ESCHERICH	Bacilli shorter, plumper and more uniform in size. When a drop of bouillon culture is smeared on a cover glass the bacilli are found to lie in parallel rows	More luxuriant growths with tendency to cause cloudiness. When grown in neutral litmus bouillon the litmus turns blue after two or three days	Fairly characteristic, but apt to be a more luxuriant and whiter growth	Grows more luxuriantly, and spreads more on the surface. May become brownish in colour after some days	In Munich in 2 out of 70 In Graz in 11 out of 250 healthy throats, and those the seat of non-diphtheritic lesions examined	Believes that they have no relation to the virulent diphtheria bacilli, and that they can be separated pretty accurately by cultural differences
DECK	Shorter, plumper bacilli, as a rule, but some more like virulent bacilli	Quicker and more luxuriant in growth	Somewhat more luxuriant, and of a more yellow colour	Colonies less jagged on margin, and more yellow in hue	In 36 well children found in 22; in 41 non-diphtheritic affections in 14, or in a total of 107 found them in 36. Also along with virulent bacilli in true diphtheria	Believed that the non-virulent forms found by him were of a different species from the virulent, and were saprophytic in nature
KOTLIK— 1st paper	Short, plump, uniform in size. Take a more uniform stain	More luxuriant, cloudy at first, afterward clearing, with abundant deposit; bouillon acid after 48 hours	More luxuriant and spreading	More luxuriant and spreading	In four mild throat inflammations	Are of a different species from Loeffler bacilli.

KOPLIK— 2nd paper	Identical in form and size, with virulent and characteristic stain	Cloudy; less abundant growth in bouillon to which glucose has been added; bouillon alkaline after 48 hours	More luxuriant, opaque, and whiter growth	More luxuriant, opaque, and whiter growth	In two following true attack of diphtheria. For first three weeks found virulent bacilli, then for two weeks there were non-virulent forms	—
ROUN & VERSIN	Majority identical with virulent bacilli. The majority of shorter, plumper, and more uniform variety	Characteristic, except for slight cloudiness. Changes of broth were same as in virulent forms, but somewhat more rapid	Same as in virulent	Same as in virulent, varying within the limits noticed in different virulent cultures	In 104 healthy children's throats found 41 times. Ten adults once. In six mild throat inflammations twice; in seven sick with measles five times	Believed the non-virulent to be of the same species as the virulent; they were simply an attenuated form.
ABROFF	Bacilli from three cases were identical with virulent forms; from one they were larger than the virulent average	Growth in bouillon same as in virulent forms, except the changes from alkaline to acid, and later back again to alkaline were more rapid than in case of virulent bacilli	Characteristic	Two of four characteristic, one more luxuriant in growth, and one giving colonies with darker central portion	Four times in 55 throats. Some healthy, others the seat of moderately severe inflammations	In doubt. <i>Note.</i> The bacillus growing more luxuriantly on agar and in layer bacilli gave a dirty brown layer on potato.
FRANKEL	Identical with virulent forms	Characteristic	Characteristic	Characteristic	In number of healthy conjunctive and in some cases of mild tonsillitis and with virulent bacilli in diphtheria. Figures not given	Believes the virulent and non-virulent to be of same species, and includes under non-virulent some causing local reaction.
MARTIN	Short, plump bacilli...	—	—	More moist, luxuriant, and whiter. Grow at room temperature	In quite a number of mild diphtheria cases running in mild course	An attenuated form of the virulent diphtheria bacillus.

If we inspect closely the descriptions of the non-virulent bacilli, we find that there seem to be two which stand out distinctly as separate varieties with which the others can be grouped.

1st. Bacilli which are in all respects, except as to virulence, identical with the Loeffler bacillus, and which like it produce an *acid* reaction in their growth in broth cultures.

2nd. Bacilli which are shorter, plumper, and more uniform in size than the Loeffler bacilli, and which produce an *alkaline* reaction in broth cultures.

As we look over the tables we see that some observers have chanced to find one of these varieties, some the other, and some both. This has led to the present confusion.

In order to study these various bacilli, and to clear up, if possible, some of the questions connected with their classification, cultures were made upon blood serum from 330 healthy throats.

When any of the varieties of bacilli described above were discovered in the cultures, they were plated out, obtained in pure culture, and, in the great majority of cases, tested as to their virulence on guinea pigs. The results of these studies are given in the tables below. The bacilli formed may be divided into three groups.

1. Bacilli characteristic in growth, producing acid in bouillon, but having no virulence.

2. Bacilli not characteristic in growth, producing alkali in bouillon, and having no virulence.

3. Bacilli characteristic in growth, producing acid in bouillon, and having virulence.

Healthy Throats where there has been no History obtained of direct contact with Diphtheria.

From where.	Total Cases. Nos.	Virulent Characteristic Diphtheria Bacilli.	Non-Virulent Characteristic Diphtheria Bacilli.	Non-Virulent Pseudo- Diphtheria Bacilli.	Negative.	Not fully Worked out.
N.Y. Dispensary (N.Y.)	1 to 151	3	12	21	115	25
Northern Dispensary	152 to 163	—	—	—	12	—
Vanderbilt Clinic (V.C.)	164 to 189	0	2	2	22	3
Throughout the city	190 to 193	0	4	0	0	0
College Phys. & S. (P. & S.)	194 to 242	0	2	3	44	4
N.Y.F.H. Dispensary (F.S.)	243 to 257	0	0	1	14	1
Orthopedic Hospital (O.H.)—						
Female Ward...	258 to 267					
Male Ward.....	268 to 275	0	3	0	15	2
N.Y. Foundling Hospital (N.Y.F.)	276 to 330	5	1	0	49	1
Totals	330	8	24	27	271	36

A Comparative Table of

Non Virulent Diphtheria Bacilli.				Pseudo-Diphtheria Bacilli.
Case No. and Source.	N.Y. 66 Throat.	N.Y. 72 Throat.	P. & S. 30 Throat.	N.Y. 101 Throat.
Examination of primary culture	Abundant large characteristic diphtheria bacilli	Abundant characteristic diphtheria bacilli	Typical pseudo-diphtheria bacilli	Abundant short even-stained bacilli (pseudo-diphtheria)
Growth in pure culture on serum at 37½ C.	Characteristic...	Characteristic...	Fairly characteristic. Short even-stained bacilli	Characteristic. Short even-stained bacilli
Agar	Fairly typical colonies	Not typical colonies	Coarsely granular colonies with jagged rough borders, and of about equal thickness throughout; brownish hue by transmitted light	Fairly typical. More heavily pigmented and uniformly thick than is characteristic of the virulent bacilli. Colonies nearly circular with even borders
Growth in alkaline glucose bouillon	Characteristic acid at end of 22 hours	Not characteristic. Broth cloudy for two days, acid end of 48 hours	Typical growth in rather coarse grains. Alkaline reaction end 48 hours	Formation of thin pellicle and slight diffuse cloudiness. Alkaline reaction at end 48 hours
Virulence in guinea pigs	G. Pig 216 gms. 1'33 c.c. No reaction	G. Pig 164 gms. 1'33 c.c. No reaction	G. Pig 405 gms. 3 c.c. No reaction	G. Pig 400 gms. 2 c.c. No reaction
Clinical notes...	Bronchitis. Diph. in house three weeks previously	Int. catarrh. No history of contagion	Healthy throat	Bronchitis. No contagion
Sex	F	F	—	M
Age	One year.....	15 months	27 years	10 years

In the above table we find that bacilli possessing all the characteristics of the virulent diphtheria bacilli, except that of virulence, were found in 24 cases, namely :—

Nos. 7, 33, 52, 63, 66, 72, 103, 105, 110, 114, 124, 132, 188, 189, 190, 191, 192, 193, 198, 212, 258, 259, 260, 297.

These bacilli were abundant in the primary cultures from 17 cases and present in small numbers only in the cultures from 7.

They averaged a little longer than the virulent bacilli from the cases of suspected diphtheria examined on the same days. In broth the bacilli from 13 of the 24 cases grew characteristically, while from 6 they caused a more or less dense cloudiness. It was found, however, that exceptionally the virulent bacilli produced the same effect, though never to the same degree, as the bacilli from case 191. In 5 cases the bacilli were not grown in broth. In all the cases in which broth cultures were made (19), the bacilli caused acid reaction in their growth. When their acid-producing power was compared with that of an equal number of virulent cultures, no marked difference could be noted. Some virulent

bacilli were found to produce more acid than the non-virulent ones, while others produced less.

Upon blood serum the bacilli grew in a manner characteristic of the Loeffler bacillus.

Upon agar, the bacilli from eleven cases grew in the characteristic manner, while from seven they grew in a less typical manner, but always in ways seen exceptionally in the virulent form. Guinea pigs were inoculated with the bacilli from fifteen cases.

For this purpose half-grown guinea pigs were employed, and they were inoculated under the skin with one-half per cent. of their weight of a forty-eight hour broth culture. In only one animal was there any appreciable reaction, and in this the local induration caused passed away within four days. A very slight degree of immunity was given to some of the pigs by the injection.

Two hundred and eighty of the 330 cases from which cultures were made were children under twelve, while 50 were adults. In only nine of the *twenty-five* were there present noticeable pathological changes in the throat, such as enlarged tonsils. The bacilli persisted in four of the throats examined for four weeks, in one for three weeks, in three for two weeks, and in some of the others for shorter periods.

In 21 cases bacilli were found corresponding to those described by Hofmann and Escherich, and pictured by Koplik in his first article. These were smaller, shorter, thicker and more uniform in size than the Loeffler bacilli, and always formed alkali in their growth in bouillon. These bacilli were never virulent in animals. Guinea pigs were inoculated with large amounts of broth culture of bacilli obtained from eight cases without showing any reaction.

As was shown in the table, virulent characteristic diphtheria bacilli were found in eight of the 330 cases.

They were in all probability derived from mild cases of unrecognized diphtheria, or from healthy children who were carrying the bacilli in their throats. The number of such infected children is indicated by the results of studies described in the following pages.

The Presence of Virulent Diphtheria Bacilli in Healthy Throats of Persons who have been brought in contact with Diphtheria.

The search for the origin of obscure cases of diphtheria has revealed the fact that it is possible for the human throat to become the habitat of the virulent Loeffler bacillus without any visible lesions resulting. Thus Loeffler found the virulent bacillus once, and Fraenkel twice; Escherich found it in several cases, in one of which the history is so significant as to be worth repeating. It was noticed that among the children coming under the care of a certain nurse a number of cases of diphtheria were developing. A bacteriological examination being made, her throat was found to contain very numerous virulent diphtheria bacilli. These remained present and virulent for weeks. A similar and interesting case is reported by Feer. In a diphtheria epidemic occurring in a hospital ward, due to a single infection, the throats of seven children became infected. The infection caused fatal diphtheria in four, an acute angina

without membrane in two, and no symptoms whatever in one. In all of these the bacilli were abundant and equally virulent. Many similar examples have been met with by myself (Park).

A very interesting investigation has been carried on to determine how frequently the throats of healthy children become infected in families where one is sick with diphtheria, and where little or no isolation is possible.

As will be seen by the following tables the throats of the members of fourteen families, in which there were forty-eight children, were examined. In fifty per cent. of these diphtheria bacilli were found, forty per cent. developed later, to a greater or less extent, the lesions of diphtheria. In considering the high percentage of cases in which this virulent Loeffler bacillus was found, it must be remembered that in these families the conditions were the best possible for the transmission of the contagium.

In numerous instances cultures have been made from the healthy throats of children in families where the diphtheria case was well isolated : in such cases the bacilli have been found in less than ten per cent. of the children.

Family.	No. of Cases examined aside from the original case of Diphtheria.	L. Bacilli found in	L. Bacilli not found in	Remarks.
A.	1	0	1	Isolation
B.	3	3	0	No isolation : all three cases subsequently developed diphtheria
C.	2	1	1	
D.	1	1	0	No isolation
E.	3	1	2	
F.	4	1	3	Isolation partial
G.	5	3	2	Isolation partial
H.	4	3	1	No isolation
I.	4	1	3	
J.	8	3	5	Isolation partial
K.	4	1	3	Isolation partial
L.	3	1	1	Isolation partial
M.	5	3	2	Isolation fair (virulent)
(2)				
N.	1	1	0	(Virulent)
14.	48	24	24	

Of the above cultures, in which the Loeffler bacilli were found in six, the virulence was tested in the usual way. The results are stated in the following table :—

Family No.	Case No.	Amount Bouillon cult. inoc.	Guinea Pig lot.	Virulence.	Clinical history.
B.	1	1'33 c.c.	337 gm.	Died in C. 40 hrs.	Developed fatal diph. one day after cult. was taken
G.	2	1 c.c.	205 gm.	Died in 44 hrs.	Developed set. tonsillar diph. two days after cult. was taken
H.	3	1'33	202 gm.	Died in 48 hrs.	No subsequent development of diphtheria
K.	4	1'33	300 gm.	Died in C. hrs.	No subsequent development of diphtheria
M.	5	1'66	490 gm.	Died in C. 40 hrs.	No subsequent development of diphtheria
N.	6	1 c.c.	250 gm.	Died in C. 40 hrs.	No subsequent development of diphtheria

It may be interesting to detail here two instances out of many observed in which the virulent bacilli of diphtheria derived from healthy throats have been the cause of diphtheria in others.

1. A child was admitted into a hospital ward in an anæmic condition, and with a chronic coryza. Five days later four children in his neighbourhood developed diphtheria. Two of these died. In seeking the cause of the diphtheria suspicion was directed to the child by a slight nasal discharge. Bacteriological examination showed that this secretion contained many diphtheria bacilli. On further examination it was found that the child came from a family in which three weeks before there had been a case of diphtheria.

2. In a family of eight children one child sickened with diphtheria; a baby was sent to a neighbour. The next day cultures showed that this baby, as well as two others, were infected with diphtheria bacilli. The three healthy infected children, as well as the sick one, were at once quarantined, but already one of the family to which the baby had been sent had contracted diphtheria from it.

The practical value of bacteriological examinations of the throats of healthy children in families where isolation has not been carried out in the first days is further shown by the fact that those children in whom the bacilli are found are extremely apt to develop diphtheria in the course of a few days, when no cleansing treatment is adopted, while they seem much less liable to do so if kept under treatment.

The Detection of the Virulent Bacilli in Throats prevents the Dissemination of Diphtheria by allowing us to isolate those infected.

A very striking instance of this was the following: In a family of four children one was sick with diphtheria. The Department inspector found three other children in the same bed with the sick one, who was constantly spitting upon and soiling the bedclothes. He made cultures from these three children, whose throats appeared healthy, as well as from the sick one; all contained abundant characteristic Loeffler bacilli. (Those were later

shown to be virulent by inoculation of guinea pigs.) When the inspector visited the same family three days later, he found two of the previously healthy children had meanwhile sickened and died, and that the third was severely ill. This child finally recovered.

From the observations detailed above we cannot escape the conclusion that *all members of an infected household should be regarded as under suspicion*, and in those cases where isolation is not enforced, the healthy as well as the sick should be prevented from mingling with others until cultures from the throat have shown the absence of bacilli or a sufficient lapse of time gives the presumption that they are not carriers of the contagium.

Summary and Conclusions.

We have found that children, and to a less extent adults, who are frequently brought in direct contact with true cases of diphtheria very often receive the diphtheria bacilli into their throats, and that these bacilli may persist and develop in these throats for days or weeks. In some cases we have found that true diphtheria followed the appearance of the bacilli in the respiratory passages, while in others no disease developed, though they might be the source of diphtheria in others.

The examination of 330 healthy throats in which no contact with diphtheria was known revealed the presence of virulent bacilli in but eight cases, two of which later developed diphtheria.

We must conclude, then, that virulent diphtheria bacilli are to be found in a small proportion of healthy throats throughout the city, and that they have been acquired either directly from diphtheria cases or from those who have been in contact with them. The examinations of the 330 healthy throats showed that in 24 bacilli existed in every way identical with the Loeffler bacillus, except that they were not virulent in animals. As the bacilli in true diphtheria cases are known to gradually lose their virulence, and as this loss of virulence can be caused artificially, it seems to the writers that they should be regarded as true diphtheria bacilli, which have lost their virulence.

The examination of the same throats showed that in 27 there were bacilli present, which, although closely resembling the diphtheria bacilli, showed constant differences not only in size and manner of staining, but in the chemical products of their growth. These bacilli should be differentiated from the diphtheria bacilli, and are properly designated as pseudo-diphtheria bacilli.

The results of these investigations, together with those recorded by others, seem to indicate that there are at least two varieties of bacteria, and perhaps more, to which the name pseudo-diphtheria bacillus has been given. It seems to us that these different bacilli should be separated in name as they are in fact.

First : There are bacilli which differ in no respect from characteristic diphtheria bacilli, except that they lack virulence. As Roux and Yersin, Fraenkel and others have pointed out, this loss of virulence occurs naturally at times (virulent and non-virulent bacilli even existing at the same time in a throat), and can also be produced artificially.

It seems to us that these bacilli should be classed with the virulent diphtheria bacillus, in spite of the fact that their lack of virulence gives them an entirely different relation to the disease diphtheria. The twenty-four cases in which these bacilli were found never developed diphtheria while they remained under observation, nor was any case of diphtheria ever traced to them. This seems to accord with the experience of others.

With the diphtheria bacilli should be classed temporarily such exceptional bacilli as those found in the two special cases described above, for we know that even among virulent bacilli there are marked differences in the luxuriance of their growth.

Second : There are the bacilli especially described by Escherich and photographed by Koplik. These are so uniform in their peculiarities in staining, size, shape and the production of an alkali instead of an acid, that there seems to us to be even more reason to separate them from the diphtheria bacillus than there is, for example, to separate the colon bacillus from that of typhoid.

We have never found bacilli possessing these peculiarities to be virulent, nor have they seemed to have any connection with diphtheria. It seems to us that to these bacilli alone the name pseudo-diphtheria bacillus should be given.

The few bacilli which do not seem to come under either of these divisions must await further study before being classified.

Some of the Methods by which Diphtheria is Transmitted.

The facts brought out by the investigations of the Department throw important light on the manner in which diphtheria is transmitted.

As related to this question, let us consider first very briefly what is known of the duration of life of the Loeffler bacillus outside of the body.

In actual experiment the Loeffler bacillus has been found to live for long periods of time—namely, by Hofmann on blood serum for 155 days, by Loeffler²⁴ and by us for 7 months, and in gelatine by Klein²⁵ for 18 months. The bacilli have been found to live in bits of dried membrane by Loeffler for 14 weeks, by us for 17 weeks, and by Roux and Versin for 20 weeks. Dried on silk threads, Abel²⁶ reports that they may sometimes live for 172 days, and upon a child's plaything, which had been kept in a dark place, for 5 months.

As examples of the manner in which diphtheria may be contracted, he gives the following from Johannessen :—

A teacher developed diphtheria from passing the night in a room in which three weeks before a fatal case had occurred. A child developed diphtheria after putting on the clothing worn by a child which had died of diphtheria two months before.

In a number of isolated dwellings diphtheria developed nearly a year after previous outbreaks without there being any apparent possibility of a new infection taking place from outside. We have met with a number of cases where the infected bedding or clothing has undoubtedly been the source of the contagion.

Sources from which Virulent Bacilli may be received.

1. From the pseudo-membranes, exudate or discharges from diphtheria patients.
2. From convalescent cases of diphtheria in whom the virulent bacilli persist in the throat.
3. From the healthy throats of individuals who have been in contact with others having virulent germs on their person or clothing. In these cases the bacilli have lived and developed for days or weeks in the healthy throats without causing any lesion.

When we consider that it is only the severe types of diphtheria that remain isolated during their actual illness the wonder is, not that so many but that so few persons contract the disease. This seems to be more remarkable when we observe that in a city like New York the whole tenement house district at least is an infected area. This has become evident from the observations made by the Department.

It has been the practice of the Department during the last year to plat upon a city map the location and date of every case of diphtheria in which the diagnosis had been settled by bacteriological examination. After several months the first map presented a very striking appearance. Wherever the densely crowded tenements were located, there the marks were very numerous, while in the districts occupied by private residences very few cases occurred. It was also apparent that the cases were far less abundant, as a rule, where the tenements were in small groups, than in the regions of the city where they covered large sections. At the end of six months there were square miles in which nearly every block occupied by tenement houses contained marks indicating the occurrence of one or more cases of diphtheria : and in some blocks many cases (15 to 25) had occurred.

As the platting went on from time to time the map showed the infection of a new area of the city, and thus often a local epidemic would be started. It was interesting to note two varieties of these local epidemics ; in one the subsequent cases evidently were from neighbourhood infection, while in the second variety the infection was as evidently derived from schools, since a whole school district would suddenly become the seat of scattered cases. At times, in a certain area of the city, from which several schools drew their scholars, all the cases of diphtheria would occur, as investigation showed, in families whose children attended one school, the children of the other schools being for the time exempt.

Another fact noted, perhaps as important as the foregoing, was that with the most careful inquiry it was impossible to find, in about one half of the cases, any connection with preceding cases of diphtheria.

The two following histories are instructive as showing that special conditions which are largely unknown to us determine the occurrence or escape from diphtheria under exposure. Two children in a family were taken sick with diphtheria and removed to the hospital. The servant went to another family, where the youngest child developed diphtheria a week later. In the meantime a case developed in the family living in the next apartment. There were in this family three other children

which were not isolated at all from the sick child. None of these developed diphtheria.

The child of a man who kept a candy store developed diphtheria; there were four other children in the family and these were in no way isolated from the sick one, still none of them developed diphtheria, but children who bought candy at the store, and other children coming in contact with the latter in school, developed diphtheria. The secondary cases ceased to develop so soon as the candy store had been closed.

Many similar histories could be given to illustrate the fact that the majority of persons, and even the majority of children, are not very susceptible to diphtheria, and that in addition to receiving the germs of the disease into the respiratory passages they must be in a condition favourable to the development of the disease.

It seems to be generally true that the more malignant a case of diphtheria is, the more likely it is to cause diphtheria in others. This may be due to the high grade of virulence possessed by the bacilli, or to the peculiar association of other micro-organisms in the membrane, or to the wider dissemination of the infectious matter through the discharges.

It is also well known that young children are much more susceptible to diphtheria than older persons. It is comparatively rare for the parents of children sick with diphtheria to contract the disease, although in nearly every case they must at some time receive the germs into their throats.

Should Cases of False or Pseudo-Diphtheria be Isolated and kept under the Supervision of the Health Department?

In the general circular issued by the Department the position was taken that cases which prove to be false diphtheria will not be kept under the supervision of the Department. Some, who approve heartily of the rest of the work of the Board in its dealings with diphtheria, believe that in this step it has proceeded too far, and that the pseudo-diphtheria cases, though less contagious than the true, are yet sufficiently so to render isolation and supervision necessary. From the experience obtained in the diphtheria hospital, it was believed that these cases were so little, if at all, contagious, that visiting by Department inspectors was unnecessary. Nevertheless, to make assurance doubly sure, 450 cases of false diphtheria, as nearly consecutive as possible, were investigated, all sources of contagion sought for, and the cases followed up for two weeks after complete convalescence. In none of these was isolation or after disinfection enforced by the Health Department. This is such an important question, that the results of the investigation of 100 consecutive cases are given below in tabular form. As a comparison, a similar table will be given of fifty consecutive cases of true diphtheria which were taken from the same district, and at the same time of the year as the first fifty of pseudo-diphtheria cases.

Summary of Tabulated Cases.

	Table 1. Pseudo- Diphtheria.	Table 2. Pseudo- Diphtheria.	Table 3. True Diphtheria.
History of contact with other cases ...	7	7	33
No history of contact	49	50	27
Families in which more than one case developed	5	4 ¹	13
Recovered	56	53	46
Died	0	4	17
Cases complicated by scarlet fever	4	6	—

We find, therefore, in 113 cases of false or pseudo-diphtheria occurring in 100 families that 14 occurred at the same time with or shortly after some other case, and that it is possible to assume that the disease had been directly communicated to them. In 9 of the 100 families more than one case developed. In these, as in the other 350 cases of pseudo-diphtheria investigated, it did not seem that secondary cases were any less liable to occur where the primary case was isolated than when it was not. In this connection we must remember that mild throat inflammations are very frequent in the early spring months, and that it is quite possible where two cases occurred in a family together or within a short period of each other that they may have both been due to some common exposure rather than to direct transmission. The presence in all healthy throats of streptococci renders this assumption almost a probability. The presence of the same germs in both healthy throats and those suffering from pseudo-diphtheria prevents us from deciding the point by bacteriological examinations.

A good illustration of the difficulty in determining whether these cases are communicable is the following :—

In a family of eight, there were a mother, aged 45, six children, whose ages ranged from 25 to 10, and a grandchild aged 2. These all lived on the top floor of a tenement. Two days before being visited by the inspector of diphtheria a heavy wet snow had fallen, which, as the roof leaked, caused the walls to become very damp. The next morning four of the children were attacked by more or less severe tonsillitis, which later developed follicular deposits or croupous patches, and on the following day the baby had an attack of croup. All recovered, and no further cases developed in the tenement. Here the exposure to dampness seems certainly to be the explanation of the first four cases, but the last—that of the little child with laryngitis—might with equal justice be considered as due to the dampness, or as communicated from the others.

Even if further investigation should seem to prove that the 122 cases of pseudo-diphtheria, which were found to have had some connection with other mild sore throats, were due to contagion, and not to the simultaneous

¹ Two had scarlet fever.

² Three of which had scarlet fever.

³ Six others had been in contact with scarlet fever.

effects of atmospheric or other deleterious conditions, there would still be an important practical objection to enforced isolation. Every one of these 15 cases, except the three having scarlet fever, was mild, and, indeed, leaving out of consideration the cases which occurred as complications of scarlet fever, there was only one death in 103 cases of pseudo-diphtheria, and in this one, as has been said, there was no history of contact with other cases.

ABSTRACTS.

DIPHTHERIA, &c.

Chaillou and Martin.—*Clinical and Bacteriological Study of Diphtheria.* "Annales Institut Pasteur," Vol. VIII., No. 7.

AN interesting study based upon the bacteriological examination of 198 cases of suspected angina or laryngitis. In 99 cases of angina the authors found (1) 29 cases of non-diphtheritic angina without death, (5 cases of angina with coccus, 1 case of angina with pneumococcus, 4 with staphylococcus, and 11 with streptococcus). (2) True diphtheritic angina—benign : 30 cases, no death ; grave : 14 cases, 10 deaths. (3) Diphtheritic angina with association of other microbes : 26 cases, 18 deaths.

From 99 cases of laryngitis (croup)—(1) Non-diphtheritic without angina : 7 cases, 1 death. (2) Non-diphtheritic at the *début*, but becoming diphtheritic by contagion : 7 cases, 3 deaths. (3) Diphtheritic laryngitis : 85 cases, 55 deaths.

A. Cartaz.

Bikeles.—*Anatomical Changes in Diphtheritic Paralysis.* "Lancet," Aug. 25, 1894, p. 450, from "Neurolog. Centralblatt."

No changes were found in the peripheral nerves, but in the spinal cord, especially in the dorsal region, in the root-zone of the posterior columns, and also in the posterior part of the lateral columns, and in the anterior root fibres, degeneration was marked. The patient was forty years of age, and during convalescence four weeks after the attack he had nasal speech, difficulty in swallowing, paresis of the lower limbs, paræsthesia, ataxy, and loss of knee-jerk.

Dundas Grant.

Moizard.—*Treatment of Diphtheria.* "Lancet," Aug. 18, 1894, p. 412.

THE local application of a five per cent. solution of corrosive sublimate in glycerine is made twice or thrice in twenty-four hours. In children below two years of age the strength is reduced to one in thirty or forty. Each application is preceded and followed by a clearance of the fauces by means of a dry tampon. Every four hours the throat is thoroughly douched with borie solution, lime water, or plain boiled water. He considers the "lesser frequency of manipulation" (? Abs.) an advantage presented by this over other methods.

Dundas Grant.

Weibgen (Berlin).—*Treatment of Diphtheria.* “*Deutsche Med. Woch.*,” 1894, No. 20.

IN the Friedrichsheim Hospital patients with diphtheria are treated with chlorate of potash and sprays. In cases of nasal diphtheria, injections with boric acid and solutions of permanganate of potash are made. In cases of stenosis and pneumonia tracheotomy is performed. The mortality of the tracheotomized in 1880 was eighty per cent. : in 1894 sixty per cent. The mortality of all cases in 1880 was fifty-four per cent. : in 1894 thirty-seven per cent. These results prove that epidemics have been less dangerous. If very favourable months of the year are selected, the mortality is only twenty-six per cent. : the same as with the serum treatment. It must, therefore, be admitted that the effect of the serum can only be judged when it is applied also in grave epidemics. *Michael.*

Bathony.—*Treatment of Diphtheria.* “*Pesther Med. Chir. Presse.*,” 1894, No. 10.

IN thirty-four cases the author has used internally with good result tincture of myrrh (four to two hundred). For local treatment he recommends aqua chloroformi (two to four hundred). *Michael.*

Kruche (München).—*Treatment of Diphtheria.* “*Aertze Rundschau.*,” 1893, No. 3.

THE author recommends a decoction of vinca minor. *Michael.*

Welsch (Augsburg).—*Treatment of Diphtheria by Iren.* “*Aerztlich. Rundschau.*,” 1893, No. 3.

RECOMMENDATION of ferrum oxidatum rubrum (four to one hundred and fifty). *Michael.*

Nesemann.—*Treatment of Diphtheria.* “*Aerztlich. Practiker.*,” 1893, No. 26.

THE author recommends the internal use of hydrargyrum cyanate (0·01 to one hundred), combined with local treatment by brushing with liquor ferri (one to four). *Michael.*

Davison, J. T. R. (Buenos Ayres).—*Treatment of Diphtheria by the Soluble Salts of Mercury.* “*Lancet.*,” Aug. 18, 1894.

THE opinions of Pepper, Selden, and others are quoted in favour of mercurial treatment in this disease. Dr. Davison’s “personal experience” of this treatment has been one of continued success, and in marked contrast to the results which I had obtained before I had begun to use the internal administration of perchloride of mercury. He claims that the drug may neutralize and render innocuous the toxins in the blood, and that it certainly possesses manifest power in bringing about the disappearance of the false membranes. To ensure success it must be administered early in the disease, and in large doses, a child between four and twelve years of age easily taking half a drachm of Van Swieten’s Liquor every two hours at first, then every three, every four, and so on till the drug is omitted. It is best administered well diluted with milk. He adds iron and strychnine later on. He considers local applications

prudently used, a help, but apt to be injurious if the children are obstinately refractory.

Dundus Grant.

Sziklai. — *Pilocarpin in the Treatment of Croup.* "Oesterreich. Aerztliche Centralanzeiger," 1893, No. 34.

RECOMMENDATION of this treatment.

Michael.

Ahronson. — *Diphtheria Antitoxin Solution.* "Deutsche Med. Woch.," 1894, No. 19.

ANSWER to the paper of Prof. Behring.

Michael.

Dräer (Königsberg-i-Pr.) — *Disinfective Power of Soziodolic Acid and its Salts as regards Loeffler's Diphtheria Bacillus.* "Deutsche Med. Woch.," 1894, Nos. 27 and 28.

BACTERIOLOGICAL experiments of the author gave the result that hydrargyrum soziodolicum destroys the bacilli in diphtheritic cultivations in the proportion of one to ten thousand in five minutes, and these results are equal to those obtained by sublimate. He recommends insufflation of mercuric soziodol powder upon the diseased mucous membrane.

Michael.

PHARYNX AND ŒSOPHAGUS.

Perman, E. S. (Stockholm). — *On Sarcoma of the Tongue, with Remarks on the Treatment with Pyoktanin of Similar Growths.* "Hygeia," April, 1894.

THE patient observed by the author was a lady aged thirty-four, who for about half a year had suffered from slight dysphagia. The visible part of the tumour was about the size of a walnut, and was soft, without any ulceration of the surface. It was situated on the right side of the base of the tongue. After thirty-one injections of one or two grammes each of a solution of pyoktanin (1 : 500), combined with galvano-caustic treatment, the tumour disappeared entirely in the course of three months, and the patient was without any recurrence one year later, when observed last.

Holger Mygind.

Lermoyez, Helme, and Barbier (Paris). — *A Case of Chronic Coli-Bacillary Tonsillitis.* "Bull. Soc. Med. des Hôpit. de Paris," June 28, 1894.

LERMOYEZ relates the case of a young man, seventeen years of age, frequently affected with angina and amygdalitis. The last relapse left a chronic inflammation of both tonsils, which were hypertrophied, and offered numerous white patches, as in pharyngo-mycosis. Antiseptic gargles, cauterizations with pheno-sulpho-ricinic acid gave no result. Lermoyez tried galvanic cauterizations without effect. He removed the tonsils by *morcellement*, and the cure has been definitive.

In the crypts, in the white patches, and in the portions of tonsil removed were found a quantity of coli-bacillus, verified by cultures and reaction.

A. Cartaz.

Bean, C. E.—*Mycosis Tonsillaris*. "New York Med. Journ.," Aug. 18, 1894. THE author refers to the rarity of the disease, to the fact that it is essentially of a chronic nature, is usually a disease of adult life, and is accompanied by an amount of mental depression quite characteristic of the affection. Treatment is peculiarly difficult. According to Ruault, the smoking of cigarettes is useful. Baber has found the local application of alcohol succeed. Nitrate of silver, tincture of iodine and bichloride of mercury are all recommended. The local application of the galvanocautery and attention to general health is probably the most successful line of action to adopt.

W. Milligan.

Buschke (Greifswald).—*The Tonsils as a means of Entry of Pyogenic Micro-Organisms*. "Deutsche Gesellschaft für Chirurgie," Band 38, Heft 4, 5.

MICRO-ORGANISMS may enter by the intestinal tract, and by the respiratory tract. That by inflammation of these organs the glands of the neck can be infected is well known. It is also probable that tubercle bacilli can pass through the healthy tonsils, and without changing these organs produce tuberculosis of the glands of the neck. But micro-organisms can enter the whole circulation also, and produce deleterious effects, as is proved by some cases observed by the author. (1) Uncomplicated fracture of the humerus was followed one month later, when nearly cured, by an angina. Some days later there was osseo-myelitis of the humerus. Streptococci were found in the crypts of the tonsils, in the blood, and in the osseo-myelitic pus. The other cases—(2) Transplantation on an ulcer cruris, angina, suppuration of the wound; (3) trauma of the gluteal region, angina, abscess; (4) angina, and the next day osseo-myelitis, are not so striking and conclusive.

Michael.

Gulpin and Ripault (Paris).—*Science of Tonsillar Tumours; Diagnosis, Indications, and Surgical Technique*. "Gaz. de Hôpit.," June 23, 1894.

CRITICAL review of the symptomatology, diagnosis, and treatment of the various tumours of the tonsil—simple hypertrophy, syphilitic sore, tuberculous ulcer, sarcoma, epithelioma, etc.

A. Cartaz.

Montaz.—*Pharyngeal Lympho-Sarcoma*. "Dauphiné Médicale," July, 1894.

THE case of a young boy, eleven years of age, tracheotomized at four years of age for laryngeal diphtheria. At ten, hypertrophy of the tonsils treated by galvanic cauterizations. Rapid development of the tumour, which invaded the fauces, pillar, and soft palate. Tracheotomy was necessary to prevent suffocation. Temporary diminution of the tumours, which afterwards progressed again and caused death in an access of suffocation.

A. Cartaz.

Drederichs (Idenheim).—*Case of Foreign Body in the Œsophagus and Perforation of the Aorta*. Dissertation, Würzburg, 1893.

A WOMAN, fifty years old, had a bone in the Œsophagus. Ten days later she died from hæmorrhage. At the *post-mortem* examination three ulcers in the Œsophagus were found. One of them communicated with the aorta. The piece of bone causing the perforation was also found.

Michael.

Schmiegelow. E. (Copenhagen).—*Foreign Body in the Gullet: Removal by Pharyngotomia Subhyoidea: Recovery.* "Ugeskrift for Læger," 1894, No. 14.

A PLATE of india-rubber with an artificial tooth, four centimètres long and three centimètres broad, was removed by pharyngotomia subhyoidea. It had lodged in the œsophagus of a peasant, aged thirty-eight, for four weeks, the symptoms having been sudden fits of suffocation, which were followed by considerable dysphagia. The anamnestic information did not reveal any distinct history of a foreign body. The patient recovered thoroughly after the operation.

Helger Mygind.

Condua.—*Case of Tuberculous-Canceroid Ulcer of the Œsophagus.* Inaugural Dissertation, Würzburg, 1893.

PATHOLOGICO-ANATOMICAL description of an œsophageal canceroid, in which, at the circumference, were found giant cells. There were also found tubercles in the lungs and tuberculous lymphatic glands.

Michael.

NOSE AND NASO-PHARYNX.

Bresgen (Frankfurt-a-M.).—*Electric Lamp for Illumination in the Examination of the Cavities of the Body.* "Deutsche Med. Woch.," 1894, No. 29.

FOR laryngological purposes the electric light should have an opal glass globe and a twenty-five-candle power. It is not necessary to apply a regulator if the lamp is combined with the urban electrical system.

Michael.

Scheff (Wien).—*New Method of Internal Massage of the Mucous Membrane of the Nose.* "Therap. Blätter," 1893, No. 7.

THE author applies the massage probe to an electromotor.

Michael.

Hornung.—*Case of Nervous Coryza.* "Wiener Med. Presse," 1893, No. 13.

A PATIENT, forty-three years old, had attacks of serous coryza for half a year. Cure by atropin.

Michael.

Hovorka (Wien).—*Contribution to the Anatomy of the External Nose.* "Wiener Med. Presse," 1893, No. 36.

THE author differentiates concave, convex, and non-curved noses. The forms depend upon the shape of the nasal skeleton, the position of the processus frontales, the form of the apertura pyriformis, and of the nasal bones.

Michael.

Ziem (Danzig).—*On the Treatment of Deflections of the Nasal Septum.* "Monats. für Ohrenheilk.," July, 1894.

IN preference to the chiselling operation so much recommended, Ziem advises the use of the saw, and describes a mechanical one worked by means of a dental machine. (His saw can be bought for thirty shillings, and in respect of cheapness it is preferable to the other excellent mechanical saws in our market.—Aus.)

Dundas Grant.

Anton.—*Congenital Deformities of the Nasal Septum.* "Archiv für Ohrenheilk.," Band 35.

THE author has examined fifty-six cadavers of the new-born, and has found deviations in nine (equal sixteen per cent.). *Michael.*

Spitzer (Wien).—*Impermeability of the Nose and its Treatment.* "Centralblatt für Therapie," 1893, Nos. 7 and 8.

REVIEW.

Michael.

Hellmann (Würzburg).—*Etiology and Treatment of Nasal Hemorrhages.* "Zeitschrift für Aertztlicher Landprager," 1893, No. 8.

SOME remarks on the favourite places for epistaxis, the dilatations of vessels on the septum. These spots must be examined without a speculum, because the latter easily covers them. The treatment recommended is cauterization and tamponing. *Michael.*

Roth (Wien).—*Habitual Epistaxis.* "Wiener Med. Presse," 1893, Nos. 23 and 24.

HABITUAL epistaxis may arise from general or local causes. General causes are diseases of the vessels or of the blood, such as scurvy, morbus maculosus Werlhofii, hæmophilia, atheroma, or acute and chronic general diseases, such as typhus, diphtheria, malaria, pyæmia, and diseases of the heart and the liver, or vicarious menstruation. Local diseases of the nose are erosions, varices, ulcers, causing perforation of the septum, lues, tuberculosis, lupus, neoplasms, and traumata. To find the original place of the hæmorrhage, the author examines the mucous membrane with the probe. Where the mucous membrane is healthy, this palpation is without effect: where it is diseased, bleeding occurs upon palpation. This must be continued to a time when the bleeding ceases. If there is a hæmorrhage, it is not possible to find the place. Inasmuch as cocaine causes anæmia, would it not be practicable to apply it before the examination with the probe? The treatment consists in tamponing during bleeding: but the tamponing should be made through the nares, and not by Bellocq's sound. Sometimes compression with the finger is sufficient to arrest the bleeding. If neoplasms are the cause of bleeding, they must be removed. Excoriations and dilated vessels must be cauterized with the galvanocautery, trichloracetic acid, or chromic acid. After treatment with pyoktanin is recommended. *Michael.*

Onodi (Budapest).—*Unusual Case of Rhinitis Hypertrophica Posterior.* "Pester Med. Chir. Presse," 1893, No. 21.

THE patient had so mobile a tongue that he could project it behind the palate into the naso-pharyngeal space. By frequently repeating this experiment, he produced hypertrophic catarrh of the turbinateds. *Michael.*

Tacquet (Paris).—*The Lachrymal Ducts as Factors in the Nasal Origin of Ocular Diseases.* Thèse de Paris, 1894.

REPORT of the papers published upon that subject, with some original observations, showing the relations between the nose and ocular diseases. *A. Cartaz.*

Tissier, P. (Paris).—*Ozena*. "Annales de Médecine," Nov., 1893, and Jan and Mar., 1894.

ANATOMICO-PATHOLOGICAL and clinical study of this disorder. The author reviews the various opinions relative to the etiology of ozæna. He himself believes atrophic rhinitis to be dependent upon a necrotic osteitis of the ethmoidal cells or sphenoidal sinus. The sapro-genetic bacteria invade these cavities, and the putrefaction is caused by that invasion. Consequently atrophic degeneration of the epithelium and the glandular system occurs. For the cure of ozæna, it is necessary to cure the osteitis of these sinuses. He uses antiseptic syringings, curettage, and insufflations of iodol.

A. Cartaz.

Wright, G. A.—*Remarks on some Affections of the Accessory Nasal Cavities*. "Med. Chronicle," July, 1894.

FOUR cases of antral disease and one of frontal sinus disease are described in detail. There is only one new point in the paper, which is the suggestion, in cases of certain disease of the anterior ethmoidal cells, to open them from their orbital aspect.

R. Lake.

King, H. M.—*Suppurative Disease of the Accessory Sinuses of the Nose*. "New York Med. Journ.," July 21, 1894.

THE author remarks that there still exists considerable discrepancy of opinion as to the most frequent cause of antral suppuration. The disease in question is, however, without exception, due to one or more of three conditions—(1) disease of the teeth or surrounding structures, (2) disease of the nasal chamber proper, or (3) a constitutional condition which predisposes to erosions of mucous surfaces throughout the body, especially those of the upper air chambers. Empyema of the antrum may supervene upon a catarrhal inflammation in the nares, without other factors in its causation, under two conditions—(1) there must be an extension or a coexistence of the catarrhal inflammation in the lining membrane of the antrum exciting secretion in excess of what can be absorbed by the lymphatics; (2) there must be an occlusion of the ostium maxillare of sufficient duration for the accumulation and decomposition of the secretion, which may then, by the irritation of its presence, excite a further discharge which finally becomes purulent. The author has not found Voltolini's transillumination test of great value in antral cases. He considers a chronic purulent discharge from the nares, more or less profuse, especially if unilateral, and syphilis, foreign body, neoplasm and simple purulent rhinitis can be excluded, a sufficiently suspicious sign to warrant taking the only step which makes the diagnosis absolutely correct, viz., the abstraction of pus from the suspected cavity. The prognosis must be guarded, as such cases are rarely seen until chronicity has been established.

W. Milligan.

Lermoyez (Paris).—*The Treatment of Accessory Sinus Disease in Vienna*. "Annales des Maladies de l'Oreille," Jan., 1894.

I. Empyema of the Maxillary Antrum.

The indications are:—(1) To evacuate the pus in the sinus: (2) to check suppuration by treating the lining membrane.

Washing out the antrum through the ostium maxillare being extremely unsatisfactory and often impossible, an artificial opening must be made in either (1) *the middle meatus*, (2) *the inferior meatus*, (3) *an alveolus*, or (4) *the canine fossa*.

Of these, the first is unsuitable and dangerous; the second is only suitable for an exploratory opening; the fourth is only exceptionally employed—namely, when the patient refuses to have a tooth extracted, or when we require a large opening in order to curette the walls of the sinus.

The method most in favour, therefore, is opening into the antrum through an alveolus. The aperture must be large, and is best made by a trocar from four to five millimètres in diameter. Two or three drops of a two per cent. solution of cocaine are previously injected into the gum.

To check suppuration, if antiseptic irrigations and insufflations of iodoform or iodol do not succeed, the antrum is plugged with a fifty per cent. iodoform gauze bandage, two centimètres wide, and about fifty long, with a selva on each side.

II. *Frontal Sinus.*

Evacuation of the pus must first be attempted by the natural channel through the nose. The anterior extremity of the middle turbinal must be removed as a preliminary, and all polypi and granulations curetted.

To irrigate the frontal sinus, a canula is used, which is bent to a right angle six or eight millimètres from the end. The narrowest point in the fronto-ethmoidal passage is in the anterior portion of the ethmoid ("anterior ethmoidal cell"), connecting the hiatus with the sinus. When the sound or canula reaches this narrow point it must describe a rotatory movement, so that its beak is directed a little internal to the side of the nasal wall. Thus the sinus is easily entered.

Hajek believes he has affected this when—(1) He feels the sound has cleared a passage and entered a cavity. (2) When the sound occupies exactly the position it would do if passed in a skull with the sinus exposed. He employs for washing out the sinus a three per cent. boric solution; this failing, a five to ten per cent. solution of nitrate of silver.

Zaufal, after laying bare the entrance to the infundibulum, applies the air douche directed into the sinus through a fine india-rubber tube, and evacuates the pus. In most cases this operation, repeated daily, effects a cure. Zuckerkandl states that he has never found pus in the frontal sinus, and not in the corresponding maxillary antrum at the same time (*post-mortem*). Frontal abscess is usually opened by trephining the anterior wall, but some rhinologists think the case should be left to Nature first. If the pus points on the inner wall of the orbit, the abscess must be opened there.

III. *Sphenoidal Sinusitis.*

The sphenoidal sinus must be reached through the nose, because in endeavouring to reach it by the pharynx (1) we should have to employ a bent instrument, which cannot be used with the same skill and strength as a straight one. (2) The inferior or pharyngeal wall of the sinus is thicker than the anterior nasal one. (3) Because if the sinus is small, there is a risk of wounding the basilar process. Perforating the sinus

through the nose is effected easily by passing a straight trocar obliquely backwards and upwards between the septum and the middle turbinal.

It is extremely difficult to enter the natural opening—(1) because its position is extremely variable; (2) it is hidden from view; (3) if it were not, the diseased condition of the mucous membrane would in a sphenoidal case be sure to block the olfactory slit. It is usually necessary to remove more or less of the middle turbinal in order to reach the sinus. As large an opening as possible is made into the anterior wall with a sharp spoon, and the cavity is daily washed out with a three per cent. boric, or five per cent. silver nitrate solution. In some cases it is useful to plug with iodoform gauze.

IV. *Ethmoid Cells.*

The middle meatus is cleared of granulations, curetted, and cauterized. A portion of the middle turbinal is resected, if needful. A puncture is made in the *bullæ ethmoidalis* without risk of wounding the orbit by means of a small, straight trocar, having a movable shoulder, which can be adapted so as to prevent the point entering more than half a centimètre. Irrigation with a one per cent. lysol, or twenty per cent. silver nitrate, is employed after aspirating pus. As an alternative, insufflation of iodoform or plugging with the gauze. The communications between the cells being usually destroyed by the disease, it is generally sufficient to treat the anterior ones corresponding to the *bullæ ethmoidalis*.

Dundas Grant.

Luc (Paris).—*Suppuration of the Frontal Sinus and its Surgical Treatment.* "Semaine Médicale," June 16, 1894.

REPORT of three cases of chronic suppuration of the frontal sinus treated by trephining of the anterior part of the sinus and drainage, and in one case by direct penetration through the ethmoidal cells in the nasal cavity for complete cure. Luc thinks that syringing and drainage of that cavity through the nose is in many cases insufficient, and it is preferable to obtain drainage through the dependent point of the anterior part of the sinus, and perforate that part with the gouge and hammer. The operation is easy under complete anaesthesia and antiseptic dressings, and the drainage is by that means really complete.

A. Cartaz.

Mermet.—*Nasal Fibro-Sarcoma reaching into the Pharynx.* Soc. Anat., Paris, July 14, 1894.

THE case of a young girl, sixteen years of age, having the symptoms of post-nasal occlusion, caused by a large tumour of the pharynx, with a pedicle implanted upon the posterior end of the inferior turbinated bone. Ablation was easy with the finger. Histologically it proved to be a fibro-sarcomatous polypos.

A. Cartaz.

Kaarsberg, F. (Copenhagen).—*Electrolytic Treatment of Fibrous Tumours of the Naso-Pharynx.* "Hospitals-Tidende," 1894, No. 7.

THE author reports the results of electrolytic treatment of fibrous tumours of the naso-pharynx in four patients, aged respectively forty-seven, eighteen, sixteen, and eighteen. In all cases chloroform was administered, the strength of the current being very high (one hundred and forty to

three hundred and forty milliamperes). The needles applied were made of steel, and rather thick (No. 15 Charrière), and the author recommends the use of two needles, the one of the shape of a catheter for the Eustachian tube being introduced through the nose, while the other one is more curved and plunged into the growth behind the palate, both needles being isolated by means of a drainage tube, and being connected with either pole. One *séance* of from seven to ten minutes' duration is often sufficient to destroy the growth, but two are sometimes necessary. Although the current applied was so very considerable, the author did not observe any bad effects, and in all cases complete destruction of the growth was obtained, galvano-cautery and scissors being, however, also used during the after-treatment. The author also made experiments on living animals to ascertain what strength of the current could be endured, and succeeded in applying a current of seven hundred and sixty milliamperes in a dog without its showing any ill effects. *Holger Mygind.*

LARYNX.

Tarunsovsky (Goibersdorf).—*New Method of Insufflating Powders into the Larynx.* "Therap. Revue der Allg. Wiener Med. Zeitung," 1894, No. 27.

THE insufflator is combined with a double balloon arrangement.

Michael.

Chiari.—*On Intubation in Non-Diphtheritic Laryngeal Stenosis.* Gesellschaft der Aerzte in Wein. Meeting, July 22, 1894.

IN cicatricial stenoses, chronic inflammatory stenoses, granulations, and glottic spasms the author has obtained good results with this method. In cases of tuberculosis the results are not so good, because the irritation of the mucous membrane is too great.

Michael.

Stern (Düsseldorf).—*On the Use of Opium in the Treatment of Laryngeal Stenoses in Children.* "Therap. Monats," 1894, No. 5.

BY the application of a few drops of opium it is possible to diminish the symptoms of stenosis in children, especially in cases of croup. As soon as the medicament is given the respiration becomes quieter and the cyanosis disappears. Sometimes this improvement is so great that it is possible to avoid intubation or tracheotomy which had seemed to be indicated; but, in cases in which the operations remain necessary, it is possible to defer their performance, and that is often of great use in private practice.

Michael.

Langmaid, S. G.—*The Treatment of Laryngeal Phthisis.* "Boston Med. and Surg. Journ.," July 19, 1894.

THE main symptoms of laryngeal phthisis are aphonia, dysphonia, dysphagia, stridulous breathing, dyspnoea and cough. The main object of treatment of the tuberculous larynx is to relieve pain and modify or cure the disease, and so to prolong life. Lactic acid may be used

either with or without previous curetting. It should be well rubbed into ulcerated areas. A twenty per cent. solution of menthol in olive oil seems to prevent and remove infiltration. Iodoform, in the form of powder or in an ethereal solution, at times relieves pain. Resorcin in eighty per cent. solution diminishes suppuration. The aceto-tartrate of aluminium, in addition to its astringent properties, has remarkable antiseptic power. The author makes an urgent plea for the local treatment of laryngeal phthisis. Although few cases are cured, many are relieved and much suffering saved.

W. Milligan.

Fischer (Hanover). — *Definitive Cure of Laryngeal Cancer after Partial Extirpation of the Larynx.* "Deutsche Zeitschrift für Chirurgie," Band 38, Heft 4, 5.

A PATIENT, fifty-nine years old, presented an epithelial carcinoma of the right vocal band. Extirpation of the left half of the larynx was performed. Six months later there was recurrence in the form of a tumour of the size of a pea in the anterior commissure. Extirpation of the greater part of the right thyroid cartilage, and a portion of the cricoid cartilage, was performed. Cure resulted. But the operation was followed by a stenosis, which made it necessary for the patient to wear a canula for a year. It then became possible to respire by the natural passage. The Schornstein canula could be removed, and the tracheal fistula was closed by sutures. The first operation was made in 1889, and the second in May, 1890. The patient is now (1894) free from recurrence. This is the first case in which a recurrent operation has been performed with complete success.

Michael.

Ingals, Fletcher. — *A Cyst of the Larynx cured by Injection of Carbolic Acid, and a Report on Mycosis of the Pharynx and Tonsils.* "New York Med. Journ.," Sept. 1, 1894.

THE patient, a man aged forty-three, consulted the author on account of soreness of the throat of about two years' duration. Upon laryngeal examination a large swelling of the left ventricular band and ary-epiglottic fold was seen. The left true cord was concealed by this swelling, and the right cord was covered by a temporary swelling of the right ventricular band. The swelling had a smooth, uniform surface, and the appearance, excepting in the smoothness, of a solid growth. At first deep injections of lactic acid were tried. After the third injection a laryngeal lancet was plunged into the swelling, and a little thick semi-transparent greyish fluid obtained. Temporary improvement followed. Later on, a solution of carbolic acid in glycerine was injected, and rapid improvement was made, and followed by complete cure.

During the past three years the author has seen twelve cases of mycosis of the pharynx and tonsils in his private practice. In four treatment was not properly followed out. In the other eight cure was effected by thorough cauterization of the affected parts with the galvano-cautery. In seven, or fifty-eight per cent., of these cases the patient had for many years suffered from sore throat; in eight, or sixty-six per cent., soreness of the throat had been present for from four to eight weeks, and in one, or eight

per cent., there was distinct evidence of previous follicular tonsillitis. In one there had been specific sore throat; one was suffering from general debility; in three, or twenty-five per cent., there was a history of dyspepsia; while in fifty per cent. the patients were in good general health. The author advises the use of the galvano-cautery, the burning of the diseased tissue, and also of the healthy to the depth of one-eighth of an inch; to cauterize two or three patches at a time, and to repeat the operation two or three days after all soreness from the former operation has passed away. The general health should also be strictly attended to.

W. Milligan.

Schlesinger (Wien).—*Contribution to the Clinical and Pathological Anatomy of Laryngeal Disturbances in Tabes Dorsalis.* "Wiener Klin. Woch.," 1894, Nos. 26 and 27.

THE author has observed a case of tabes combined with paralysis of the postici. After the death of the patient the author carefully examined the nerves, and found pathological degenerations in the same and in the substance of the postici muscles. In a second case of tabes the laryngoscope showed complete paralysis of the right vocal cord. Sometimes spastic movements of the arytenoid cartilages were observed. From time to time arose attacks of laryngeal crises. In a third case also paralyses of both recurrent nerves and attacks of laryngeal crises, with a high degree of dyspnœa, were observed.

Michael.

Pryor, John.—*Report of a Case of Acute Supra-Glottic Œdema without apparent cause.* "Med. Record," July 28, 1894.

THE patient, a dentist, aged thirty, vigorous and healthy, consulted the author on account of difficulty of speaking and breathing. The trouble came on suddenly in the early hours of the morning, the patient waking up with a slight sense of fulness and discomfort in the region of the throat. Towards the afternoon of the same day the condition became worse; the face wore an anxious expression, and the voice had a peculiar metallic resonance. On examination the epiglottis and ary-epiglottic folds were seen to be very œdematous. The former showed a line of division in the centre, which gave the appearance of two large puff-balls. At its base or lingual surface of the right side a large bleb of about one-fourth of an inch in diameter was seen. No view of the interior of the larynx could be obtained. There was also pronounced infiltration of the connective tissue of the neck in the region of the larynx. No pain was complained of. Respirations were eighteen per minute; pulse and temperature normal. Six leeches were applied to the laryngeal region, a hot mustard foot-bath, wrapping in blankets, and copious draughts of hot lemonade and whisky being also ordered. Relief soon followed. The author states that no evidences of cardiac or of renal disease could be found. The following considerations he points out as worthy of careful study—(1) the absence of any known causative agency and constitutional symptoms; (2) the extent of œdema which may occur without marked dyspnœa; (3) the peculiar character of the voice; (4) the marked benefit of prompt treatment without scarification; (5) the possibility of the case belonging to a group of obscure clinical manifestations known as angio-neurotic œdema or allied vaso-motor curiosities.

W. Milligan.

THYROID GLAND.

Garré (Tübingen).—*Injection Treatment in Goîtres.* "Correspl. für Schweizer Aerzte," 1894, No. 13.

THE author has made experiments with injections of iodoform into the veins, and has found that they are without any danger, and are not followed by thrombosis; there is, therefore, no danger if the veins in a goitre should be injected. *Michael.*

Strom, H. V. (Christiania).—*Some Operations for Goitre.* "Tidsskrift for den Norske Lægeforening," 1894, No. 7.

REPORT of five cases of goitre operated upon: two cases of follicular goitre (partial strumectomy); one case of fibrous, and one of vascular goitre (partial strumectomy); and one case of cystic goitre (enucleation of the cyst). In the one case of follicular goitre the patient, a woman aged forty, three weeks after the operation got an œdematous swelling of the face, first on the side operated upon, and later also of the opposite side, and complained of headache and general *malaise*; the symptoms, however, disappeared entirely in the course of a month. Three of the patients were seen by the operator several years later; in one of these the remaining part of the gland was unaltered in size one year and a half after the operation; in the two remaining cases there was a distinct, though not very considerable increase of the size of the remaining part five years after the operation. *Holger Mygind.*

Reinhold (Freiburg).—*The Thyroid Gland Treatment in Mental Diseases.* "Münchener Med. Woch.," 1894, No. 31.

IN six cases of mental diseases, combined with goitre, the author has employed feeding with the thyroid gland of the sheep. No definite influence upon the mental diseases (parosmia, melancholic mania) could be remarked; but in all cases the circumference of the goitre decreased. The author then applied the same treatment in a healthy patient with goitre, and obtained a diminution of the goitre. *Michael.*

Harold, J. (London).—*A Case of Myxœdema treated by Thyroid Gland.* "Lancet," Aug. 25, 1894.

THE patient was a male, aged fifty-one, with characteristic symptoms. The first treatment adopted was subcutaneous injections of glycerine extract of thyroid gland. No improvement followed and the injections caused abscess formation. Improvement followed the administration of tabloids (one to three daily), each containing five grains of the dried gland. *Dundas Grant.*

REPORTS OF SOCIETIES.

THE NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, held on Wednesday Evening, April 25th, 1894.

DR. D. BRYSON DELAVAN, *Chairman.*

SECTION OF LARYNGOLOGY AND RHINOLOGY.

DR. WENDELL C. PHILLIPS presented an *Astringent Tablet*, to be used in acute and subacute cases of laryngitis and pharyngitis, with excessive secretion. It was composed as follows:—Eucalyptol, oil of cubebs, ammoniated tincture of guaiacum, and fluid extract of thuja, each one quarter of a minim, combined with a small quantity of tannic acid, menthol, oil of gaultheria, etc. The extract of thuja had recently been recommended for laryngeal growths. These tablets were well borne by the stomach, and might safely be used by vocalists.

DR. PHILLIPS related the history of a patient who, while spraying her nose with an atomizer similar to the one described by Dr. Douglas at the last meeting, was suddenly seized with a violent fit of sneezing, and felt a sensation "as though her ears were filled with water." Three days afterwards she began to have a discharge from one ear, and a perforation of the drum was found on that side.

DR. F. J. QUINLAN referred to a somewhat similar case coming under his observation. His patient, while in bed, was seized with a violent fit of sneezing and intense pain in one ear. The pain continued until perforation of the drum on that side occurred, with free discharge.

Tracheotomy for Acute Catarrhal Laryngitis in a Case of Papilloma of the Larynx. By DR. WALTER F. CHAPPELL.

The patient was a little girl who, about one year ago, began to complain of hoarseness and shortness of breath. Early in March, 1894, she had an attack of measles, and since then the difficulty in breathing became very pronounced. She came under Dr. Chappell's observation on March 19th. The dyspnoea was very marked, the child's lips and fingertips being blue. On examination it was found that the larynx contained some growth. Intubation was performed, but the child made such violent inspiratory efforts that the tube had to be withdrawn. The trachea and larynx were filled with thickened mucus. Tracheotomy was then performed, and the child was now breathing through the tracheal opening. The larynx was filled with papillomatous growths, one of which could be seen through the wound in the trachea.

DR. MYLES had seen a similar case to the above. Intubation was performed, but gave very little relief. Tracheotomy was then performed

by Dr. Abbe. An incision was made from the upper part of the thyroid cartilage down to about the third ring of the trachea. An enormous papillomatous growth was found attached to the cord, and encircling about two-thirds of the larynx. It was carefully removed, and its base curetted and touched with chromic acid. The patient did nicely for about two weeks, when broncho-pneumonia set in and resulted fatally. In view of the high mortality from broncho-pneumonia, probably of a septic character, in those cases wherein the complete operation is done at one sitting, Dr. Myles said he thought it preferable that a preliminary tracheotomy should be performed, as in Dr. Chappell's case.

Dr. J. W. GLEITSMANN said he agreed with Dr. Myles. In a number of cases coming under his observation, in which tracheotomy and thyrotomy were performed at one sitting for the removal of benign growths in the larynx, the operation was followed by broncho-pneumonia and death. He inquired of Dr. Chappell whether he contemplated performing a second operation on the child.

Dr. CHAPPELL replied that he had not yet decided what course to pursue. He referred to an article recently published by an English surgeon, who strongly objected to the performance of thyrotomy at such an early age: it meant a constant succession of thyrotomies, on account of the recurrence of the growths. In his case he thought of removing the growths through the mouth with the finger and forceps, under general anaesthesia.

Dr. J. WRIGHT referred to an article on this subject published several years ago by Dr. Franklin H. Hooper, in which the writer recommended the removal of these growths through the mouth, under general anaesthesia. The patient is held in the upright position, and the sunlight reflected into the throat, and then, with the aid of the laryngoscopic mirror, the growths are removed, first wiping away all secretions. The instruments used by Dr. Hooper were the laryngeal forceps and curette.

Dr. GLEITSMANN said in one case in which he attempted to remove a laryngeal growth through the mouth, the larynx continually filled up with mucus, rendering inspection very difficult.

Dr. CHAPPELL presented a patient with *Syphilitic Lesions of the Larynx and Pharynx*. Those in the larynx had existed for about six years without any treatment. There was a great deal of tissue formation in the larynx, amounting almost to complete stenosis. This Dr. Chappell said he was trying to remove by means of strong applications, such as tincture of iodine and carbolic acid in almost equal proportions, and thus far the result had been very satisfactory.

Dr. W. K. SIMPSON presented a case which illustrated the early appearance of *Syphilitic Lesions on the Pharynx*.

The patient became infected with syphilis in November, 1893, and four weeks afterwards a destructive lesion appeared on the laryngeal wall. This extended very rapidly up to the posterior nares, and down as far as the larynx, including the soft palate. When he came under Dr. Simpson's observation in March, 1894, he was extremely emaciated, not having been able to swallow for a number of weeks. Under vigorous

specific treatment he began to improve rapidly, and now he is in a fairly robust condition.

The CHAIRMAN stated he saw the patient when he first came under observation, and he could corroborate Dr. Simpson's statement regarding the marked improvement in his general condition.

A Case of Deflected Nasal Septum with Adhesions.

Dr. MYLES presented a patient who had been unsuccessfully operated on by a number of prominent surgeons for the correction of a deflected nasal septum. The septum was deflected to the left, with adhesions extending from the floor of the nose to the middle meatus. All cutting, trephining, or sawing operations simply aggravated the condition. Dr. Myles said he passed a trephine along the floor of the nose and inserted a rubber tube, which will be allowed to remain there until healing is complete. The principle of the operation is similar to that of Dr. Nichols for syphilitic adhesions of the palate, or that of piercing the ear-lobes for rings. The upper part of the adhesions hold the tube *in situ*. This is the first step in the operation. The future operation will consist in removing that part of the adhesion which lies between the nasal bones and the above-mentioned opening along the floor of the nose.

Dr. BERENS said he thought the same result could be accomplished by removing the adhesions and inserting a cork tube, covered with flexible collodion. The latter can be made aseptic by the admixture of iodoform, and it does not absorb moisture.

A Consideration of the Vascular Mechanism of the Nasal Mucous Membrane and its Relations to certain Pathological Processes.

Dr. JONATHAN WRIGHT read a paper on this subject. He stated that the blood supply to the turbinated bodies possesses an interest for the rhinologist due largely to the bearing its proper appreciation has upon his comprehension of the pathological lesions and clinical phenomena in the various arbitrary divisions of rhinitis.

The larger arterioles of the turbinated bodies are well supplied with muscular coats, and lie in the deepest layers of the mucous membrane close to the bone. They give off branches which supply by a network of capillaries the periosteum, the glands, and the epithelial layer of the mucous membrane. These capillaries are collected into veins, which dilate into venous sinuses, the larger lacunae of which are the deeper, the superficial or "cortical network" communicating with them. These lacunae, again, empty into the veins which accompany the primary arterioles into the periosteal layer. Zuckerkandl says he has never seen the arteries emptying directly into the venous sinuses. Dr. Wright said he is not convinced that this does not occasionally take place in the erectile bodies of the nasal mucous membrane, though he has thus far been unable to trace the connection between the two. The capillaries, usually at least, do not empty directly into the venous sinuses nor into the radical veins accompanying the arteries. They are usually seen collected first into veins. The smaller veins of the periosteal layer empty directly into the radical veins accompanying the arterioles. The radical arteries and

veins pass through various bony canals into the nose, as the large sphenopalatine foramen and a smaller foramina in the ethmoid. The artery will evidently compress, when dilated, its accompanying vein against the bony walls, thus letting in more blood and limiting the outflow. There is a similar mechanism in the arterial branches with their veins which lie in the deeper or periosteal layer of the mucous membrane. There is such a complete anastomosis of the superficial veins with one another, with those of the skin at the edge of the nostrils, with the veins of the dura mater and of the orbit, that the obstruction to the venous return probably exerts its dilating tendency only or chiefly upon the *deep* network of the erectile bodies. The question whether the contraction of the muscular fibres of the vein is synchronous with that of the artery is a point which is not as yet clearly explained by the physiologist. Even if they do contract and dilate synchronously, the pressure of the dilated artery would sufficiently narrow the lumen of the relaxed vein. In contraction of the artery, on the other hand, the venous fibres would tend to prevent the excessive dragging apart of the venous walls and the over-engorgement of the vein. The venous sinuses depend largely for their expulsive power upon their muscular walls. In chronic rhinitis we find the walls of these vascular spaces very much thickened by the overgrowth of non-elastic fibrous tissue of a low grade of development. This must manifestly interfere with efficient contraction of the muscle fibres. In the hypertrophy of these bodies we have, therefore, not only a dilatation of a lacunæ, but a paresis of their walls. Atrophy evidently has as its antecedent the gradual elimination of the muscular element and the encroachment upon the vascular spaces by this fibrous hyperplasia, which itself finally becomes to some extent absorbed, leaving as a thin covering to the shrunken turbinated bones a membrane deprived of its two essential elements, the glands and the venous sinuses. Usually, however, this process is arrested before it reaches these extreme limits. Is it not reasonable to conjecture that we may find in this an explanation of the cause of atrophic rhinitis apparently beginning in so many cases about the time of puberty? This fibrosis beginning in childhood as the result of inflammation of a low grade must tend to prevent the development, at or near puberty, of the venous sinuses.

In the distribution of the capillaries to the surface and to the glands the endothelial wall of the capillary is in close apposition to the epithelium of the surface and of the glands. Free nuclei may frequently be seen passing through the epithelial layer. This is especially noteworthy in the so-called olfactory region. The nuclei having no power of locomotion when deprived of the cell body, but being simply recognizable cell detritus, we must suppose that they are carried by the exudation of the watery part of the blood. We may, therefore, get a transudation of serum to the surface directly from the vessels, especially in the olfactory regions, without necessarily the intervention of the glands. Zuckerkandl has lately described a special network of small veins, so surrounding the mouths of the glands that their engorgement would necessarily close the glandular conduits. These two points make a certain clinical phenomena clear to us. The first stage of a coryza, after the somewhat problematical

one of vascular contraction, is that of vascular engorgement of the erectile bodies, leading to nasal occlusion. Now, with the blood vessels all full, and with the stimulation of the glands, we should expect the secretion of mucus to be discharged almost coincidently with the congestion. As a matter of fact, we all know that for the first few hours even watery secretion is scanty, and for the first few days the discharge consists very largely of nearly clear serum. It only begins to thicken with mucus when the vascular tension relaxes. Evidently, then, the congestion of these veins encircling the glandular outlets must close the latter and prevent the escape of their contents. The watery secretion of the first stage we could account for by transudation directly from the blood vessels through the areolar tissue and the surface epithelium.

Dr. W. H. PARK said that, while making some experiments in nasal irrigation recently, he sprayed both his nostrils with a ten volume solution of peroxide of hydrogen. Immediately afterwards there was complete occlusion of the nose, with a profuse discharge, which continued for twenty-four hours. The symptoms were similar to those of acute coryza.

Dr. JAMES E. NICHOLS said the conclusion drawn by Dr. Wright in his paper, that the dry rhinitis is the result of a long-standing hypertrophic condition, appears to him to be a very logical one. The glandular and vascular activity of the parts being interfered with by the growth of interstitial tissue, atrophy of the underlying tissue and of the mucous membrane itself is very likely to occur.

Dr. E. L. MEIERHOF said he was much interested in that portion of Dr. Wright's paper which referred to the theory that fibrosis is the cause of the atrophic condition seen in the nose. Dr. Meierhof expressed the opinion that the condition of the mucous membrane in these cases of atrophic rhinitis did not resemble a fibrotic condition. On the contrary, the parts appear to be very pulsatious, and loosely connected with their basic tissues. He is not yet ready to accept the theory that fibrosis is the cause of the atrophic condition of the glands in the nose.

Dr. SIMPSON said if atrophic rhinitis is due to a previous hypertrophic rhinitis, why is it that we do not see a great many more cases of the former condition, as the latter one is so very common? He thought there must be some other factors concerned in the causation of atrophic rhinitis.

Dr. MYLES inquired whether Dr. Wright had ever seen a case of atrophic rhinitis commence after puberty?

Dr. PHILLIPS inquired how Dr. Wright accounted for the very early cases of atrophic rhinitis in children of two or three years, usually with ozena, sometimes without; or for the fact that we very rarely see atrophic rhinitis in later adult life.

Dr. WRIGHT then closed the discussion. He stated that while he believes that atrophic rhinitis is preceded by a state of chronic inflammation and fibrosis, the theory is very difficult to demonstrate. Atrophic rhinitis usually exists long before the patient comes under our observation. A microscopic examination of any particular specimen only shows the condition existing at that time—it does not show the changes that have preceded it. He has made an examination of a large number of

specimens in various stages of inflammation, and they seem to show an uninterrupted succession of changes through the fibrotic stage to the atrophic. The first stage no doubt consists of an inflammatory process, the products of which become organized into connective tissue. Then the glands and the venous sinuses begin to atrophy. The presence of this fibrotic material can be demonstrated in the walls of the vessels and sinuses. The usefulness of the glands may thus be destroyed by the ingrowth of fibrous tissue.

In reply to Dr. Simpson, Dr. Wright said there certainly are other factors in the production of atrophic rhinitis. No disease is caused by any single factor. Why in one case hypertrophic rhinitis should be followed by atrophy, and in another case not, he could not say. There might be a constitutional element in its production, or the development of the venous sinuses might have been interfered with at the age of puberty.

Dr. Wright said he has seen many cases of atrophic rhinitis commence after puberty, but not associated with ozæna. It might occur after extensive operations in the nose. Atrophic rhinitis is seen in late adult life, but it does not give rise to any symptoms, as the glands are all destroyed. Cases of atrophic rhinitis beginning in infancy and associated with ozæna are usually syphilitic.

THE NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, held on Wednesday Evening, May 23rd, 1894.

Dr. D. BRYSON DELAVAN, *Chairman.*

SECTION OF LARYNGOLOGY AND RHINOLOGY.

EXHIBITION OF NEW INSTRUMENTS.

Dr. DWIGHT L. HUBBARD exhibited an instrument devised for the purpose of preventing the entrance of blood into the larynx during operations on the mouth, nose or throat under general anæsthesia. It was made upon the principle of an O'Dwyer tube, and a funnel-shaped ether inhaler could be attached to it.

Dr. HERMAN KNAPP exhibited a *Rolling Curette* for the removal of adenoid growths in the throat and naso-pharynx. By means of it soft adenomatous granulations in the throat were readily removed under cocaine anæsthesia. There was little or no hæmorrhage, as no vessels are cut. The instrument was similar to the Gottstein curette.

Dr. EMIL MAYER said that at the meeting of the section last November he had already exhibited an instrument similar to Dr. Knapp's.

Abscess of the Thyroid perforating into the Trachea.

Dr. WALTER F. CHAPPELL gave the history of a case which was operated on by Dr. Munger, of Waterbury, Conn., and exhibited a *post-*

mortem specimen in connection with the same. The patient was a woman, who, when admitted to the hospital, was suffering from extreme dyspnoea of about two hours' duration, and of sudden onset. Tracheotomy was performed, the opening being made between the thyroid and cricoid cartilages, and on introducing the finger down into the trachea a mass could be felt. He then attempted to perform a lower operation, but the woman died. On *post-mortem* he found an abscess cavity in the right lobe of the thyroid, which communicated with the trachea through an opening about one and a half inches below the vocal bands. Previous to the onset of the dyspnoea the woman had had occasional attacks of aphonia.

Dr. WILLIAM H. PARK showed a section of a skull in which there was marked deviation of the posterior nasal septum.

Dr. JAMES E. H. NICHOLS presented a patient with the following history: Male, aged twenty-five. About one year ago he began to experience pain in the sphenoidal region, followed by partial occlusion of the posterior nares and slight exophthalmos on the right side. Examination revealed a large growth in the body of the sphenoid, pushing the anterior surface of the bone far forwards. With the gouge and forceps the anterior surface of the body of the sphenoid was removed, and the sphenoidal cells were thoroughly curetted. The growth also extended into the pterygoid process on the right side. Under the microscope it proved to be an osteo-sarcoma. After the operation the patient did well and the exophthalmos disappeared. In November, 1893, he returned, and on examination it was found that the growth had recurred in the nares, and the ethmoid on the right side was involved. A second operation was immediately undertaken. The right nasal bone was split up, and an opening made into the nares. The middle turbinated body was entirely removed, together with the nasal wall of the ethmoid, and the cavity was cleaned out as far back as the posterior nares. The patient made a rapid recovery and had immunity up to one month ago. He now has marked exophthalmos, and the growth from the ethmoid is visible in the nares. It can also be felt in the orbit, and the antrum on the right side is entirely filled. Dr. Nichols said he now proposed to exsect the superior maxilla and clear out the antrum, making the operation as radical as possible.

Dr. PARK referred to a case of osteo-sarcoma, in which the patient had twenty-four consecutive operations performed, owing to recurrence of the growth.

Report of a Case of Thyrotomy for Multiple Papilloma of the Larynx, with Exhibition of the Patient. By Dr. WENDELL C. PHILLIPS.

A coloured girl, aged eleven, first came under observation in June, 1893. Family history negative. The child was in good health until three years of age, when the mother left her in the South, and did not see her until 1892, when she learned that the child had lost her voice, and that this condition had existed for several years.

On examination, papillomatous growths were found occupying the region of the right false cord, and extending to and partly covering the left cord. The child was admitted to the hospital, and was given

potassium iodide internally and local applications of ichthyol, but no improvement followed. On July 29th, 1893, Dr. Phillips removed two or three small pieces of the growths with the forceps, and the pathologist's report confirmed the diagnosis of papilloma. On March 4th, 1894, a preliminary tracheotomy was performed, and, about two weeks afterwards, thyrotomy. A long incision was made, exposing the thyroid cartilage, the crico-thyroid membrane, and the cricoid cartilage. The blade of a probe-pointed curved scissors was then plunged through the crico-thyroid membrane, and the entire body of the thyroid cartilage divided through the notch. When the segments of the thyroid were held apart by retracters, the papillomatous masses protruded from the wound. They were very numerous, and were found to be attached, not only to the vocal cords, but to the entire sub-glottic region, and also to the ventricles. The growths were removed mostly with the curette, a few being removed with the cutting forceps and scissors. The whole surface was thoroughly curetted and then cauterized with the galvano-cautery. After the hemorrhage had been controlled, the cartilage was closed with four catgut sutures, the external wound closed with silk. At nine p.m. on the day of the operation the temperature began to rise, and by three o'clock the next morning it reached 105.6° ; pulse, 136, respirations, 32. During the next four days the temperature ranged from 103° to 104° , and then gradually fell to normal. The lower part of the wound had healed by granulation, and but a small sinus now remained. The voice, entirely lost before the operation, had improved slightly. No hope of the return of phonation was given previous to operation, and the vocal cords were found to have been badly damaged by the long-continued pressure of the papilloma.

A Case of Myxo-Sarcoma. Presented by Dr. ROBERT C. MYLES.

A man, who had suffered since 1891, the disease apparently beginning in a decayed tooth. He was operated on in March, 1894, by Dr. J. A. Wyeth, who removed the superior maxilla and a part of the malar bone, the pterygoid plate, and the pterygoid muscles. The patient was now apparently well, although under the eye a small portion of the wound remained unhealed, and through this the tears flowed. The man also complained of an unpleasant, sweetish taste in the mouth.

A Case of Osteo-Sarcoma. Presented by Dr. MYLES.

A woman, who had suffered for about one year. The growth commenced apparently near a diseased tooth-root. The antrum was opened, and a large quantity of sarcomatous tissue removed. There was considerable thickening of the bone, with protrusion of the eye-ball. On account of the location of the growth, a radical operation was contra-indicated.

Dr. MYLES said, in his opinion, these cases of sarcoma were curable, if found early enough. It was the delay in diagnosis, owing to their obscure position within the recess of the antrum, that made them inoperable. In many instances an early exploratory incision is the only way to clear up the diagnosis.

Some Remarks based upon Personal Observation and Experience in the Treatment of Diseases of the Accessory Nasal Sinuses.

Dr. JONATHAN WRIGHT read a paper with this title, in which he confined himself principally to suppurative conditions of the antrum. He detailed the histories of a number of such cases coming under his observation, in two of which the suppurative process was due to traumatism. In another case, a young woman, aged twenty, first seen about eighteen months ago, complained of nasal obstruction and a purulent discharge on the left side. Polypi were removed from that nostril. No positive evidence of ethmoid disease could be made out, but she presented all the signs of pus in the antrum, including those afforded by transillumination. From an opening made into the antrum through the mouth with a hand-drill a small amount of pus came away. So that the cavity could be better syringed and have better drainage, a small opening was also made in the canine fossa: a perforated rubber tube was then inserted, but this was not tolerated on account of the pain. It was therefore removed, and the opening in the canine fossa allowed to close. The antrum was syringed out at regular intervals, but the discharge never entirely ceased, and after a time it began to reappear in the nostril. Last August the patient was put under ether, and with the chisel a piece of bone one-quarter of an inch square was removed from the anterior wall of the antrum in the canine fossa. The cavity was explored with a probe, and nothing found therein but pus. It was then packed with iodoform gauze, which was changed every other day at first, and then once or twice weekly. After several weeks of this treatment there ceased to be any discharge either from the nose or the antrum for two weeks. Then it suddenly began again, and became very profuse and offensive. Several attempts had been made to find an ethmoid complication, but without success. Thinking that some foreign body might be located in the antrum, another operation was undertaken a week ago. An incision an inch long was made through the mucous membrane, parallel with the alveolar border, and when a sufficient extent of bone had been exposed, the previous opening was enlarged with a chisel so as to allow the introduction of one blade of a small pair of bone forceps. An opening was then made sufficiently large to allow the introduction of the little finger. A thorough exploration of the cavity with the finger failed to reveal the presence of any foreign body or of bare or rough bone. At the upper part of the antrum, however, soft, spongy tissue could be felt. This was scraped away. Dr. Wright said he could only explain the condition of affairs in this case by assuming that the previous pyogenic membrane had been removed by the prolonged tamponing, but that the apex of the antrum had escaped. He also feared that this pyogenic membrane communicated through the hiatus semilunaris with some area of infection in the nose.

After presenting the patient whose history is detailed above, Dr. Wright read the following conclusions, which he stated were the result of his own experience in the treatment of antrum suppuration, strengthened by a study of the experience of others:—

1. In acute cases, keep the nose clean for a month or two at least before opening the antrum, unless the symptoms are urgent.

2. It is not wise to waste more than a week or two in attempts at syringing the cavity through the hiatus semilunaris, and this should only be done in cases where the patients are reluctant to submit to a radical operation.

3. Removing obstructions from the nostril should always be attended to as an essential part of the treatment, but this is never, in itself, sufficient to cure disease of the antrum, although it occasionally does bring about a cure of the superficial forms of ethmoid disease.

4. Cooper's operation—*i.e.*, through a tooth alveolus—is only to be resorted to in case of a defective tooth. It can better be done by a dentist under nitrous oxide anæsthesia. It is useless to leave the tube in or keep the opening patent more than three or four weeks.

5. In case Cooper's operation is not indicated, or has failed, an opening should be made through the anterior wall of the antrum sufficiently large for the admission of the finger and instruments, and for inspection and thorough packing with iodoform gauze. The removal of dead bone and curetting the pyogenic membrane are all indicated.

Dr. WRIGHT also exhibited a number of instruments and some fresh sections of skulls. In one of these both the frontal sinuses were thrown into one, and there was no communication between the right frontal sinus and the nose.

Dr. MYLES said that his method of treating chronic antrum cases is about as follows:—After curetting he usually packs the cavity with bichloride and iodoform gauze for several days. After the gauze is removed he inserts a rubber antrum tube (made by Meyrowitz), which he has found very satisfactory. These tubes produce no noticeable irritation, and are held in place by the buccal walls. Dr. Myles said he has discontinued operating through the canine fossæ and tooth sockets, preferring the place of election on the lower border of the malar ridge, above the first molar roots. These openings should be eight or ten millimètres in diameter, so that the cavities can be thoroughly curetted. In the case shown by Dr. Wright the speaker said he would remove all sources of irritation, maintain the opening with a headed soft rubber tube, and irrigate the cavity with warm water containing one drachm each of salt and carbolic acid to the pint.

Dr. W. K. SIMPSON referred to the fact that these cases of antrum trouble are often very obstinate; he thought that one reason why the results obtained are not very satisfactory is that the operations usually are not sufficiently radical.

Dr. WRIGHT then closed the discussion.

PAN-AMERICAN MEDICAL CONGRESS.*Meeting, Washington, September 5th, 6th, 7th, and 8th, 1894.*

President.—Dr. FLETCHER INGALLS.*Secretaries.*—Dr. MORRIS MURRAY, Dr. MARON V ALFONSO.*Reported by* Dr. MORRIS MURRAY.

SECTION OF LARYNGOLOGY AND RHINOLOGY.*Hay Fever.*

Dr. D. BRYSON DELAVAN (New York City), in opening the discussion, said that there are two conflicting opinions regarding hay fever—one that it is essentially a local condition; the other, held by a greater number, that, however much local influences may have to do with its production, there is, in the majority of cases at least, an underlying general condition of some sort which tends to the production of the disease. If it is conceded that there are general causes underlying hay fever, then reliance cannot be placed entirely upon the treatment of local conditions. It is necessary, therefore, in diagnosing a case of hay fever to look into the general well-being of the patient, and to find out whether he is suffering from lithæmia, malaria, serious disorder of the heart, lungs, or kidneys, to investigate the condition of the digestive tract, and to study the nervous conditions which may be present.

The local treatment of hay fever may be summed up under two distinct heads. Under the first plan are used various heroic therapeutic and surgical measures. Under the second are employed general therapeutic measures which are not heroic, the chief object of which is to subdue local irritation; there are also surgical means which have exactly this same end in view. Where conditions exist in the nose which contribute directly to the irritation of the nasal passages—such, for instance, as distinct organic occlusion of the nose—then surgical means may be of great use. On the other hand, surgery in this department has been carried too far. Where there is not present a condition which distinctly calls for surgical interference it is wrong to advise the removal of apparent obstructions, and to employ the use of the galvano-cautery as often applied to the nasal mucous membrane in such cases. The wholesale destruction of this membrane is not a good means of curing the disease.

Cocaine is doubtless a great blessing to people suffering from hay fever. Its indiscriminate use, however, in this disease is productive of vastly more harm than good.

He desired to call attention especially to the importance of the recognition and treatment of coexisting conditions, to the abuse of surgical interference, and to the proper and improper use of cocaine. In view of the fact that the meeting represented such a wide diversity of territory, experience, and thought, he considered the discussion very opportune.

Dr. PRICE BROWN (Toronto) said that he had himself been subject to hay fever, occurring annually about the middle of August. Finding on examination two sensitive spots on the inferior turbinated bone, he used the galvano-cautery, and for the rest of the year the paroxysms were not so severe. The following year he amputated half of his uvula, and was greatly benefited by the operation. He had seen a case in which the removal of the columnar cartilage, which pressed against the wall of the nostril, had entirely relieved a patient suffering from hay fever.

Dr. JOHN O. ROE (Rochester) said that in every case of hay fever there is more or less disease of the mucous membrane. He had never seen a patient in whom disease of some portion of it did not exist. Hay fever may be considered a neurosis. The exciting cause of the neurotic condition he believed to be intra-nasal pressure, either intermittent or constant. The galvano-cautery is frequently the most useful agent in treatment. It is useful in vascular turgescence, but cannot be employed to advantage in firm hypertrophy or in osseous excrescences. In all cases constitutional treatment is advisable.

Dr. S. S. KOSER (Williamsport) thought that better results were obtained in operative procedures if the operation is done in the interval of the attacks. The operation which in his hands had yielded the most lasting benefit was to gently clip the ends of the turbinated bones. He had frequently preceded this operation by the application of the galvano-cautery, so that there might be less tendency to hæmorrhage. He agreed with Dr. Delavan in deprecating the free and undue use of cocaine, and alluded to terebene as having done good service in mitigating the severity of the attack.

Dr. JAMES E. LOGAN (Kansas City) wished to confirm Dr. Roe's experience. He had yet to see a case uncomplicated by hypertrophic rhinitis, or by rhinitis in some form. The treatment he had used for the last few years had been the cautery, beginning about a week previous to the attack and continuing the applications through the period of hay fever, removing after this period had passed whatever morbid condition, mechanical or otherwise, that remained. After the attack he administered a preparation containing nitrate of sodium and half a grain of camphor, continuing for six weeks.

Dr. J. H. BRYAN (Washington City) said that there must be two different conditions in this disease, or else we should not have such diametrically opposed ideas. One of these conditions is due to a morbid state of the nose, which, of course, can be remedied. But when there is no morbid condition discovered in the intervals between the attacks he did not believe that the case could be cured by local treatment, although it may sometimes be greatly palliated. Those cases which are dependent upon exostoses or upon the pressure of the turbinated bodies are usually relieved and do not return. But those cases which are entirely neurotic in character, where in the interval of the hay fever attacks, so far as observation goes, it is impossible to see any morbid condition, invariably return in this part of the country about August 15th. He had had two such cases.

Dr. E. FLETCHER INGALS (Chicago) said that he was fully in accord with the last speaker. He had thought for a long time that when there was nothing discoverable that was giving discomfort, treatment of the nasal cavities was useless. But he had seen cases where hyperesthesia existed, without any form of obstruction, benefited by cauterization. This is most useful when done two or three weeks before the attacks are expected, so that the mucous membrane may heal before the onset of the attack. Cauterization was never made over an area greater than one centimètre in diameter, the burn never destroying the mucous membrane. When there is much swelling, deeper linear cauterization is necessary. He did not favour removal of the turbinated bones, but when this is done the bone should be removed beneath the mucous membrane, and only so much taken off as is necessary to allow the mucous membrane to fall aside and be out of the way. He had seen a case in which soothing treatment carried out by the patient for two years prevented recurrence of the attacks, and had a case in which, at the end of two years, the patient had practically no trouble. This patient never succeeded when he could possibly prevent it, and avoided blowing or wiping his nose. No treatment was employed. One half of all cases could be relieved, perhaps cured, by local treatment during the interim, but if the patient first presented himself after the attack had been established, local treatment was not important except to soothe the parts. He believed that the gouty condition caused hay fever in many cases, the rheumatic condition in many others, and had no doubt that digestive disorders had much to do with it. He relied much upon the tonic sedative treatment similar to that recommended by the late Sir Morell Mackenzie, consisting of the phosphate of brucia combined with camphor, hyoscyamus, salol, and sometimes with valerianate of quinine. He had used this with much advantage for three or four years. Treatment should be begun three or four weeks before the attack is expected, and continued throughout the season.

Dr. D. BRYSON DELAVAN (New York City) said that he had seen cases in which in the intervals the nasal condition seemed to be normal, but that we commonly find hypertrophic conditions, catarrh, exostoses, nasal polypi, and various other deformities present throughout the year. He thought that all would admit that the general condition of the patient should be kept up to the best possible limit, that the best opportunity for relieving the patient will be found in the interval between the attacks, when abnormal conditions of the nose should be remedied if possible, and that during the attack treatment should have for its prime object the alleviation of the existing symptoms. He thought that it would not be unwise for the section to place itself on record as opposed to the indiscriminate use of cocaine. When therapeutic and surgical means are exhausted, certain relief can be obtained by placing the patient in a proper climate. In this class of cases, where the patient can be sent away during the time he is having his attacks, and where he can be treated in the intervals, the attacks may be done away with in a fair proportion of instances.

Dr. JOHN N. MACKENZIE (Baltimore) wished to endorse what Dr.

Delavan had said in regard to cocaine. At a meeting of the American Laryngological Association in Detroit, some years ago, he called attention to the fact, shortly after the drug was brought to this country, that the time came sooner or later when cocaine dilated the blood vessels in the throat and nasal passages. He perfectly well established that point, and that Dr. Delavan's denunciation of its indiscriminate use was correct. But there was another point not generally known—namely, the evil effect sometimes produced by menthol. He knew of two cases in the practice of a fellow physician in which menthol gave rise to brain symptoms similar to those of cocaine. They were both singers, and had learned that a little menthol squirted into the nose with an eye-dropper just before they were going to sing would make their voices more resonant. So it had become their practice, every time they were about to sing, to drop in a little of this seemingly harmless drug. Finally the friends of one of them noticed that she was having hallucinations, and that her mind was otherwise becoming affected. This was spoken of to her physician, and when she ceased using menthol all her bad symptoms disappeared. The other case was affected in the same way, and on discontinuing the use of menthol became well again.

The Early Diagnosis of Laryngeal Tuberculosis.

Dr. ANGEL GAYINO (City of Mexico) recommended that in patients suffering from a catarrhal condition of the larynx which has no discoverable cause, but which obstinately resists treatment, a microscopical examination be made of the laryngeal secretion. Where this is scanty, he even resorts to scraping the laryngeal mucosa to secure it. Tubercular infection may thus be diagnosed and treatment instituted earlier than is otherwise possible. His results with this method have been such as to lead him to adopt the procedure in all such cases as come under his notice.

Clinical Notes of Cases of Tubercular Ulceration of the Larynx treated by the Krause Method at the Throat and Chest Clinic of the Emergency Hospital. By T. MORRIS MURRAY, M.D. (Washington, D.C.).

STATISTICS OF RESULTS OBTAINED BY THIS METHOD IN KRAUSE'S PRACTICE.

Report of cases: These include tubercular ulceration occurring on the soft palate, uvula, walls of pharynx, and in the larynx.

Conclusions: Whenever lactic acid can be applied directly to the granulating surface of a tubercular ulcer the pain accompanying such ulcer is promptly relieved, and the ulcer soon heals. These results are obtained whether great debility be present or not.

The relief afforded the patient by these applications warrants their use even in cases where there is no hope of prolonging life.

Report of a Case of Tubercular Laryngitis treated in Colorado Springs. By S. E. SULLY, M.D.

The author reports the cases of tubercular laryngitis which he has treated, and been able to follow out so as to report definitely concerning results, while practising in Colorado Springs.

Forty-five cases showed decided evidence of tubercular laryngeal affection among a continuous series of 250 cases of phthisis. Many other cases were seen and treated, but were not seen for a sufficient length of time or often enough to give results. In order to give sufficient time for results, no cases have been taken of phthisis or laryngitis that were seen for the first time less than two years ago. A comparison of the general symptoms, history, and results of the 250 cases, with those reported on in this climate and in the Swiss Alps at a similar elevation, show them to be average cases. Also a like comparison of the laryngeal cases with those of well-known observers, with the exception of results, indicates a common natural history. No statistics of results could be obtained, though occasional cures are referred to, and the disease is supposed to be necessarily fatal with a few striking exceptions.

Among the 250 cases of phthisis, there were forty-five with tubercular laryngitis (twenty per cent.), twenty-five with infiltration, and twenty with both—that is, eight per cent.

The average duration of the twenty-five cases without ulceration from their first symptoms up to the time of this report or death was six years, while of eight of them that got worse it was three years and ten months. Of the twenty cases with ulcers the average duration was three years and ten months, while of fifteen of them that got worse it was two years.

After taking all the laryngeal cases that deteriorated, the average duration of life was two years and seven months. Bosworth says the average duration of all cases with laryngeal tuberculosis is about two years. Forty-eight per cent. of all the laryngeal cases improved. There was sixty-eight per cent. of improvement among the non-ulcerated cases, and twenty-five per cent. among the ulcerated cases.

In considering the improvement in the throat alone, in 64·2 per cent. of the whole forty-five laryngeal cases there was local permanent arrest, and besides, in five more cases, there was well-marked temporary improvement.

Among the non-ulcerated alone the local improvement was sixty-eight per cent.

Among the twenty ulcerated cases, fifty per cent. healed, and remained healed, while three additional cases healed temporarily. Of these twenty cases, in twenty per cent. the lungs were in the last stage of tuberculosis, fifty per cent. of whom were generally improved, and in seventy-five per cent. there was local arrest of the laryngeal disease. Thirty per cent. were in the second stage of pulmonary tuberculosis, of whom 16·6 per cent. were generally improved, 66·6 per cent. having arrest of throat disease.

Fifty per cent. were in the third stage as regards their lungs and showed twenty per cent. of general improvement, while in thirty per cent. of them there was arrest of the laryngeal complication.

The ulceration in thirty per cent. was found in the commissure, of whom 33·3 per cent. improved; upon the arytenoids in forty-five per cent., with none improved; upon the false cords in twenty-five per cent., with none improved; upon the epiglottis in thirty per cent., seventeen per cent.

improved: and upon the true cords in fifty per cent., of whom thirty per cent. improved. In the majority the ulceration was not limited to any one of these parts. The author believes these cases would not have shown such good results, even in the Colorado climate, without careful local treatment, though it was shown that similar treatment had been skilfully applied in a low climate and had failed in most cases. As a general principle, stimulation is preferred to sedation, while cleanliness is of the utmost importance, and a variety of drugs and methods are called for and useful in their turn.

Tuberculosis in Colorado Springs.

ADDITION TO ABSTRACT.

Dr. SOLLY, among these cases which he has critically studied, and numerous others which he has treated in the past eighteen years, has never seen a case in which laryngeal tuberculosis existed without accompanying pulmonary disease. He thinks that laryngeal tuberculosis generally indicates a tendency to free dissemination of the tubercle, and an absence of any tendency to self-limitation. While an occasional infection of the larynx by means of the sputum is admitted, he thinks the usual channel is internal. High climates are beneficial in laryngeal phthisis, affording relatively, though not actually, as good chances of arresting or retarding the progress of the disease as in the pulmonary variety.

ABSTRACT ON PRELIMINARY NOTES ON THE USE OF FORMATES.

Dr. E. L. SHURLEY (Detroit) presented some preliminary notes on the use of formates in ulceration of the pharyngeal and laryngeal mucous membranes. The formates of ammonia and soda were employed because they were especially non-poisonous.

Their internal use produced increased appetite, but caused irritation of the intestinal tract, and had no effect upon the lesions in the throat. Local applications were made of equal parts of starch and formate of soda by insufflation, or of five to ten per cent. solutions of sodium or ammonia formates by spray. The author claims as a result speedy cicatrization of simple ulcers and a cicatrization or arrest of progress, more or less permanent, in specific, tuberculous, or epitheliomatous ulcerations. The applications are not to any degree painful. In the larynx, however, a stinging pain may occur for a time following the application of ten per cent. solutions.

DISCUSSION.

Dr. E. FLETCHER INGALS said that years ago he had stated, at a meeting of the American Laryngological Association, that laryngeal tuberculosis would get better if the patient's general health improved. But the reverse is also true. He thinks that the rule is correct, but we have been shown in the papers that have been presented that there are a considerable number of exceptions—more than he had supposed possible. Dr. Murray's results were certainly most excellent. He did not understand whether Dr. Murray meant to fully coincide with the statements he quoted from Dr. Hillcary or not, but for fear that he did, Dr. Ingals

said that he did not think they were correct. He understood him to say that laryngeal tuberculosis is not benefited by medical treatment. Dr. Ingals was quite satisfied, from a considerable number of cases, that medical treatment, even internal treatment, is of great advantage, and that many recover under this course, many more than would be benefited from any surgical procedure. General treatment is of prime importance. Topical treatment relieves the sufferings of the patient, and permits of better nutrition.

Dr. Shurley had sent him some of the formate of soda to try in these cases, but he had not tried it sufficiently to speak of its efficacy. He had lately been using a remedy which, in two cases, seemed of very great value—the terebchloride of iodine. This is especially valuable, for the reason that when applied to a surface of which there is a purulent secretion, it becomes decomposed at once, the iodine being set free in a nascent state, which is thought to be more efficacious than under other conditions. He uses it in the strength of from one to two and one-half grains to the ounce of distilled water, as a spray. Dr. Curtis' remark that patients must remain well from two to five years before they can be considered cured is true, but if an ulcer heals, great good is accomplished though cure is not effected.

Dr. PRICE BROWN (Toronto) had had one case in which he had seen complete cure of laryngeal phthisis, with infiltration and ulceration, as the result of operative measures. The larynx was curetted a number of times, and a solution of menthol of five to ten per cent. in albolene applied. This was used daily. At the end of a year the voice had almost completely returned, and the ulcers had ceased to spread, and showed some cicatrization. He had seen the patient often since. Her voice was entirely restored, and there was complete healing of the ulcerations. The lung is in a fibrous condition. There is no fever, but some cough. He thought that in this case there was complete cure by operation, but supposed that the patient would eventually die of the pulmonary disease.

Dr. S. K. MERRICK (Baltimore) said that he was very glad to hear of cases so near home as Washington being cured of tubercular laryngitis. He had never seen a case of laryngeal ulceration of tubercular origin that had been cured. There was no doubt about the fact, however, that cases of tubercular laryngitis do get well, temporarily at least. Any advance along the line of even temporary improvement is to be accepted with thanks.

Dr. HOLBROOK CURTIS (New York City) expressed extreme interest in the discussion, and especially in the remarks of Dr. Solly. He had reported four cases a year ago at the Academy of Medicine in New York City, three of which he thought at that time had made absolute recovery. Another year had passed and all of these cases again had cough, their throats having become reinfected. The case which he might claim as a cure was a most peculiar one. The patient was a young man, nineteen years of age, with the left lung consolidated at the apex. The throat had the appearance of three Malaga grapes, the epiglottis infiltrated and oedematous, and the arytenoids filling up the entire larynx. He scarified and curetted according to the method of Krause, applying lactic acid

thoroughly. As soon as the oedema was reduced he saw that there was entire absence of the left cord. A perichondrial abscess developed, and was opened externally. Nearly one-half of the thyroid cartilage came through as a sequestrum, and was removed. Afterwards the thyro-arytenoid muscle repaired itself, and the vocal cord was reproduced as a flabby band on that side. That was eighteen months ago, and he has had no return of the throat trouble, but is reported as rapidly running down and losing flesh from pulmonary tuberculosis. Two years is scarcely enough time in which to decide that these cases are cured. The return of the disease is almost inevitable. One per cent. would seem a very flattering figure to place as the probability of cure in tubercular ulceration of the larynx.

Dr. D. B. DELAVAN (New York City) said that some cases have got well on exercise, plenty of fresh air and a regular life; some on a strictly therapeutic local treatment. He believes that the application of lactic acid is a good method of treatment combined with curetting. He has seen cases of tubercular ulceration of the larynx which have done well in the practice of Dr. Tudor, in the Adirondacks, treated by injections of a modified tubercular lymph, prepared on a totally different principle from the lymph of Dr. Koch. Pulmonary cases also have done well on this treatment. He fears that we shall not be so successful in this country with the heroic treatment of Krause as they have been in Germany, because the American will not submit to treatment in the way the German does.

Dr. SOLLY, in closing, said that some of the patients coming to high climates are depressed by the absence of friends and business and often die, and that probably an equal number are buoyed up. He emphasizes the fact that quite frequently when a patient was running down and dying of general consumption the larynx remains healed, and the patient is saved from one of the most painful deaths.

Dr. MURRAY, in closing the discussion, said that the results of the treatment given by Dr. Solly are by far the best published in this country, and suggested what is perhaps one of the reasons why we get such different opinions as to the value of these methods of treatment in tuberculosis—that is, that the climatic conditions under which the treatment is instituted influence very materially the results. Dr. Murray had carefully followed the medical treatment of which Dr. Ingals spoke, and, so far as laryngeal tuberculosis is concerned, it seemed to him to be a record of disappointment and failure. While local medical treatment undoubtedly has its advantages when combined with the removal of the cause of the disease, he thinks that time is wasted in its employment when it is possible with the curette and lactic acid to destroy the cause of the trouble. He considered it particularly gratifying to hear Dr. Delavan speak with enthusiasm upon the surgical treatment of laryngeal tuberculosis, as he was the first in this country to call attention to the subject.

The Ultimate Prognosis in Neglected Adenoid Hypertrophy. By D. BRYSON DELAVAN, M.D. (New York).

Synopsis.—Does adenoid hypertrophy, if left to itself, disappear,

leaving the pharyngeal vault in a normal, healthy condition? Generally speaking it does not, but remains under some pathological state, which may continue throughout the life of the patient.

1. The enlargement may not entirely subside, and a degree of hypertrophy sufficient to cause serious injury and annoyance may continue to exist for many years.

2. The so-called "Tornwaldt's disease" appears to be nothing more than neglected adenoid hypertrophy.

3. Disappearance of the hypertrophy may be attended with an atrophic condition of the vault of the pharynx, the result of which is a pathological state detrimental to the patient and difficult to cure.

The above conditions may influence not only the locality in which they arise, but may have far-reaching and disastrous effects upon the other organs. The ultimate prognosis as to the local condition, therefore, in cases of neglected adenoid hypertrophy is unfavourable.

Dr. DELAVAN, in closing the brief discussion which followed this paper, said that he had not observed any distinct preponderance of the condition in either sex. There is no question as to heredity. Either the child inherits adenitis or tertiary syphilis, rheumatism, or tuberculosis which develops adenitis. As to nationality, that nation will have the most adenitis which is the most exposed to damp, changeable, chilly weather, and perhaps to tuberculosis in the various diatheses that go hand in hand with bad climatic surroundings, although you will find in the healthiest American types many who will have adenoid enlargement.

Some of the Throat Conditions observed in Gouty Subjects. By SOLOMON SOLIS-COHEN, A.M., M.D.

The term "gouty subjects" as used in this paper applies not only to those who have had attacks of acute gout, or those who exhibit the characteristic deposits of chronic gout, but also to the much larger number who suffer with the varied and often obscure symptoms of "lithæmia" with a more or less constant tendency to excess of oxalates, phosphates, urates, and uric acid in the urine. In both classes of patients the upper air-passages are frequently affected; and while the gouty diathesis cannot be affirmed to be the sole cause of the local manifestations, it doubtless acts both as a predisposing and modifying influence. A large number of cases by different observers would have to be recorded in detail and carefully analyzed before characteristic signs of throat gout could be laid down. In most, if not in all, cases the condition is a chronic one, with tendency to paroxysmal exacerbation. Attention being first directed to it during a period of intensification, it may be mistaken for an ordinary form of acute inflammation, and the diathetic origin overlooked. Inflammation, however, is not a necessary feature of the case. In the author's experience, the most prominent symptoms are sensory; pains and perverted sensations of various kinds being referred to circumscribed regions, often described as "spots," in which no adequate structural alteration is obvious. These spots are often, but not invariably, painfully sensitive to the touch, and can be accurately localized; in some

cases pain is referred to a part apparently unrelated with the one touched ; but the association is constant.

Sometimes, more especially during an acute paroxysm, these spots are characterized by the junction of several dilated blood vessels ; sometimes a single blood vessel is prominent ; sometimes there is a dusky coloration of the mucous membrane ; sometimes an enlarged and reddened follicle, but often there is no apparent difference from the surrounding membrane. In the larynx the epiglottis and the arytenoid eminences seem the favourite seats of morbid sensation ; the former usually exhibiting a network of dilated blood vessels, resembling a veil ; the latter a slight tumefaction and reddening. In some cases during the more acute stage there is a diffuse laryngitis with characteristic coloration and tumefaction—a “corned-beef” appearance. In the pharynx, the tonsillar and peritonsillar structures, and the angles of junction of the postero-lateral walls have seemed to be most frequently affected. There may be enlarged glands. The tongue and its glands are often involved. The buccal mucous membrane sometimes presents whitish patches. When the distressing sensations are referred to the rhino-pharynx, Luschka's tonsil may be tumefied and reddened. Noises and peculiar sensations in the ear are usually to be explained by tubal catarrh and gouty changes in the drum membrane.

In young patients, the pharynx and larynx are often covered with a greyish tenacious mucus ; in those past middle life the pharyngeal membrane is more often dry and pale, exhibiting a network of enlarged and tortuous vessels, or mottled with livid patches. Spasmodic obstruction to nasal respiration, with or without accompanying coryza, spasmodic choking in swallowing, and spasmodic obstruction to voice and to laryngeal or bronchial respiration have been observed in a few cases.

The diagnosis depends on urinalysis and associated symptoms of gout or lithæmia. Local treatment must be of the mildest character, and is palliative only ; for permanent relief of greater or less degree, dependence must be placed on dietetic, hygienic and medicinal measures appropriate to the gouty state.

DISCUSSION.

Dr. JAMES E. LOGAN (Kansas City) said that he had given the subject some consideration during the last few years. He had found some cases that were only remediable through the agency of general medication. In all of these cases he had made the urinary analysis that Dr. Cohen speaks of, and had found the condition as he represents it. He thought that a tired sensation in the throat, complained of especially after the patient had experienced general excitement, was pathognomonic.

Dr. J. H. LOWMAN (Cleveland) said that diagnosis is difficult in these cases. Paræsthesia in the throat has been found preceding tuberculosis, and before the appearance of the general symptoms. Might it not bear the same relation to gout ?

Dr. COHEN, in closing the discussion, said that he had not gone into the diagnosis of the great subject of paræsthesia, recognizing its difficulty. Nor did he mean to imply that all cases of paræsthesia of the pharynx or

the larynx were gouty. He confessed his inability to make a positive diagnosis by local signs, believing that this can only be done by a recognition of the constitutional conditions.

A Case of Elongation of the Epiglottis, reduced by Operative Measures.
By Dr. PRICE BROWN (Toronto)

On February 27th, 1893, Miss W., aged twenty-three years, tall and slight, presented herself for treatment. Father's family tuberculous. Father and mother both living and healthy. Two brothers died of consumption between the ages of twenty and thirty years. Patient had been delicate from infancy. Family affirms that the apex of left lung had been diseased twice. During childhood respiration was always whistling. Throughout life patient has been subject to throat-colds, always attended by hoarseness, and sometimes by complete aphonia, lasting from one to two weeks at a time. There has, likewise, always been great difficulty in freeing the throat from mucus.

Two years ago her physician sent her to Colorado Springs for six months. She returned improved in general health, but without material change in throat symptoms.

When she came to me she had been free from cold for several weeks. On examining the throat with the laryngoscope, what could be seen of the larynx appeared perfectly healthy. The epiglottis, however, which was long and narrow, with the end turned up, lay in a horizontal position, the whole of the free end pressing against the posterior wall of the pharynx, during ordinary respiration the air passing up and down through the open sides. At forcible respiration the epiglottis was varied slightly, seemingly enough to admit the passage of a knife blade. The whole of the larynx was deeply seated and the vocal cords quite invisible. It required two and a quarter inches from the right angle of a probe to reach the tip of the epiglottis.

As the patient was tractable, and a good view of the parts could be obtained, I considered the case a good one for operation, always using a fifteen per cent. solution of cocaine. On March 4th, during forcible breathing, I slipped the galvano-cautery blade between the epiglottis and post-pharyngeal wall. Then drawing the former forward, so as to free the calter, I cauterized the central portion and left side of the tip. The operation was followed by limited sloughing and acute congestion of a mild type. There were two subsequent cauterizations, one on the 18th and the other on the 29th, and the patient was allowed to return to her home (one hundred miles away) on April 1st. Throughout the treatment alcohol sprays were used to the throat several times a day.

The shortening of the epiglottis amounted to about one-fourth of an inch, and there was a perpetual niche of one-eighth of an inch. As there was, however, still a protruding corner, and the finish was not as aesthetic as one would like, I desired the patient to recuperate for a couple of months and then return. She accordingly came back for treatment on June 6th. The epiglottis had entirely healed, and she had been quite free from hoarseness. At two sittings, with an interval of three days, I touched the remaining projections with the galvano-cautery. The

healing was more rapid than formerly, and in ten days the patient was well enough to return home. The sloughs had separated; the epiglottis was uniform in length and regular in outline; and, although the organ was still horizontal, the vocal cords could, for the first time, both be seen.

DISCUSSION.

Dr. E. FLETCHER INGALS (Chicago) suggested that if the tissue could be removed by a cutting instrument, such as is mentioned in the paper, the treatment could be carried out more expeditiously, and perhaps with less danger and discomfort to the patient. The galvano-cautery, when used by an experienced person, is perfectly safe and of great value, but the resulting reaction is always more than if a simple cutting instrument has been employed.

Dr. PRICE BROWN, in closing the discussion, said that he did not think it would be wise to operate in cases of this kind, unless the patient could remain constantly under the care of the operator. He was aware of the danger in using cautery instruments of this sort, but thought that the operation could be done so that there need be no danger if you had sufficient oversight of your patient afterwards.

A Case of Angioma of the Nasal Septum. By F. C. COBB (Boston, Mass.).

The patient, a girl of fifteen years, was examined at the Massachusetts Hospital in October, 1892. She complained of obstruction of, and bleeding from, the right nostril, with a duration of six months. There had been no sneezing, and only occasionally a yellow, thick discharge from the nostril. Her general condition was anæmic; she was subject to headache, and exhausted by slight exertion.

Examination showed a small growth attached by a thin pedicle inserted into the septum of the right nostril, above the end of the lower turbinated bone near the junction of the skin and mucous membrane. The growth was soft, its base dotted with a few small blood clots. It moved backwards and forwards with respiration, but did not pulsate. The right nostril was slightly atrophic, otherwise the upper air-passages were normal. The growth was removed, with a very slight hæmorrhage, with the aid of the Hooper snare and écraseur. The base was not cauterized, and the site was completely healed in a few days.

In June, 1893, she reported that there had been no recurrence.

The growth was submitted to Dr. Whitney, pathologist to the hospital, from whom the following report was received: "Growth with large vascular sinuses with more or less round cells about—cavernous angioma."

In looking up the literature of nasal angiomata, one is struck by the lack of pathological accuracy shown by the reporters of cases. Sutton, Ziegler, Birch-Hirschfeld, and other pathologists agree that angioma may be defined as a new growth of blood vessels, held together by a slight reticulum of connective tissue.

The cases reported are those of Verneuil, Wagner, Steinbrugge, Seiler, Bichet, Roe, Jarvis, Vanderpoel, Burekhardt, Nelaton, Huguier,

Panas, Guyon, Dumenil, Delavan, Boef, and Luc. There were in all nineteen cases.

There was no microscopical examination in six cases, viz., those reported by Dumenil, Verneuil, Panas, Guyon, and Vanderpool.

In five cases the growths contain myxomatous tissue, and are not, therefore, pure angiomas. These cases were reported, two by Wagner, two by Luc, and one by Delavan.

Three cases, those of Bichet, Hugnier, and Boef, were probably fibromata rather than angiomas. We have, then, left the cases of Richet (reported by Bazg), Steinbrugge and Burekhardt (which I could not find), Roe, Jarvis, and Nelaton. Richet's case contained embryonal and fusiform cells in large quantities. It was, therefore, probably an angio-sarcoma. Roe's case was, by microscopical examination, an angioma, but it subsequently degenerated into an angio-sarcoma. Nelaton's pathological description is not characteristic enough to class this tumour among the angiomas; while in the case of Jarvis no pathological description, but only the diagnosis, was given by the microscopist.

As a further proof of the rarity of this affection, I would say that, in an examination of 7429 cases in the Massachusetts General Hospital records, I have found no other case. With regard to the symptoms, the only two of importance are hæmorrhage from and occlusion of one nostril. In all the reported cases a mere examination of the growth with probe or finger caused extensive hæmorrhage.

As regards prognosis, it is evident from Roe's case that a pure angioma may degenerate into a malignant growth. The diagnosis of pure angiomas can only be made by careful microscopical examination.

In the treatment of these growths we are met with less difficulty, since all the recent authors seem to consider the snare, if used slowly, as the safest instrument.

The length of time to be consumed in removal should depend upon the thickness of the pedicle.

In Roe's case three hours were consumed in removal of the growth, the hæmorrhage being very slight.

Jarvis and Luc got no hæmorrhage with slow snaring, but considerable from more rapid use of the instrument. The former used his own snare and *écraseur*; the latter, the galvano-cautery wire.

In my own case I attribute the slight hæmorrhage to the thinness of the pedicle.

DISCUSSION.

Dr. J. N. MACKENZIE (Baltimore) said that he had seen but one case of true cavernous angioma of the nasal septum. He thought that comparatively few of our anatomists were intimately acquainted with the structure of the nasal mucous membrane, that is to say, with its cavernous structure. Many of them mistake the transition stage from simple inflammation of this membrane to hypertrophy for cavernous angioma. He thought that many of the cases reported were nothing more than portions of the hypertrophied membrane in this stage. A pendulous and prolapsed condition of the turbinated bodies may be

mistaken for angioma, since they sometimes assume a pendulous form, even hang out of the vestibule, presenting all the appearance of true angiomata.

Dr. Cobb, in closing the discussion, said that he agreed with what Dr. Mackenzie had said, but that in his case the tumour grew from the wall of the septum, and contained no glands nor any signs of hypertrophy.

Report of a Case of Myxo-Sarcoma of the Nasal Cavity. By C. W. RICHARDSON, M.D.

The interesting features in the case are numerous. The development of the growth, as noticed by the parents, was from early infancy. The age of the child at the time of operative interference was only four years and nine months. The enormous size of the growth, filling out as it did the nasal and pharyngeal cavities. The complete absence of hæmorrhage previous to, and the small amount at the first removal of the growth. The rapid reproduction of the growth—it filling out the left nasal cavity within four days after a most searching and thorough removal. From a pathological point of view it presents an interesting feature in the presence of single fibres of striated muscular tissues here and there disseminated throughout the growth. The growth was first removed by snare, but on its rapid reproduction a more radical procedure was adopted. The second operation was that of Billroth, for resection of the superior maxilla. Recovery was complete. Recurrence followed in four months in the pharynx and lymphatic glands of the neck. Result—death.

Sarcoma of Naso-Pharynx, with Report of Case. By Dr. JAMES E. LOGAN (Kansas City, Mo.).

J. N. T., aged forty-four, school teacher, consulted me in June, 1888, presenting the following history. Up to the age of forty was very robust; was then taken with typhoid fever. Shortly after recovery he noticed what he called a "fulness in the upper part of the throat," accompanied by considerable secretion of saliva. This condition grew steadily worse, and in a few months he was unable to breathe through the nose, could scarcely speak, and often felt on the point of suffocation. His general health was much impaired, and the discharges had become excessive and fetid.

He applied to a local practitioner, who found a tumour in the throat projecting into the pharynx below. Not wishing to operate himself, he referred the patient to a surgeon in our city. This gentleman, as I understand, pronounced the growth a fibroid tumour. He removed it and dismissed the case as cured. There was a temporary improvement in the patient's general health; but he soon lost appetite, became emaciated, and his former symptoms returned with frequent hæmorrhages, and for the first time some pain, not acute, referable principally to the left ear. The surgeon again examined him and discovered that the tumour had returned. This time he diagnosed it as sarcomatous in nature. He prescribed a tonic treatment, hoping to build up the general health before attempting a second operation; but the tumour grew so rapidly that he was forced to remove it while the patient was still very

weak. There was no glandular complications, and but little pain. This second growth was removed by means of a wire *écraseur*. The patient reports the operation as very bloody, the hæmorrhage continuing for several days. He rallied slowly, but for five months enjoyed comparative immunity from his trouble. Then the symptoms again returned and another operation took place. This went on until he had submitted to nine such operations. He then concluded to apply to a throat specialist.

I examined him and found a tumour, perhaps twice as large as a partridge egg, situated partly upon the roof of the pharynx and extending down a quarter of an inch along the posterior wall of the naso-pharynx. It appeared slightly lobulated, and was firmly attached to a large base. Patient's general condition was much below par. He was somewhat cachectic, and suffered considerable pain in the ear and in the back of the head. Digital examination of tumour provoked profuse hæmorrhage.

I tied back the soft palate, applied a ten per cent. solution of cocaine, and divided the growth into three sections. One of these I removed at once with the galvano-cautery. Very little hæmorrhage followed. I applied persulphate of iron to the cauterized surface and sent the patient back to the hospital.

I saw him daily, but applied no treatment except a spray of warm Dobell's solution. No extensive suppuration followed. In a week he came to my office, and I then removed the remaining section, which by this time was much reduced in size. The surface healed readily. The tumour was examined by several pathologists, who all pronounced it a round-cell sarcoma. The growth has not returned, and the man is to-day in perfect health.

DISCUSSION.

Dr. J. N. ROE (Rochester) said that he had removed a large myxo-sarcoma from the ethmoid and turbinated bones. The outer portion was myxoma and the base was sarcomatous. He thought it very likely that the growth had originated with this mixed character.

Dr. INGALS said that he was interested in this subject, having seen a number of cases of malignant growth of the nose. He could not then state whether they were sarcomata or epitheliomata. One such growth, occurring in a lad twelve or thirteen years old, was shown by a careful microscopical examination to be a mixed sarcoma, having enough of the sarcomatous element to insure malignancy. Three operations were performed. The patient lived for at least two years. In these cases he obtained much better results from operations with the knife, snare or forceps.

Some Forms of Nasal Reflexes and Report of Cases. By S. K. MERRICK, M.D. (Baltimore).

While a few medical men are somewhat sceptical as to the connection between the treatment of certain intra-nasal conditions and the cure of so-called reflex affections in some more or less remote portion of the body, so many cases have been reported, covering such a wide field, by so many trustworthy observers, that I take it that the great body of intelligent

physicians, among throat specialists at least, are united practically in believing the connection very close.

Until within a comparatively recent date few cases of nasal reflex disease were recorded in medical literature. It would carry us far beyond the limits of this paper to refer to the names of all who have done good work in this field of investigation, yet it may not be amiss to mention those of a few whose labours have thrown special light upon this interesting subject.

Voltolini seems to have been one of the first writers to call attention to the nasal reflex, in 1872, when he reported a case of spasmodic asthma, dependent on nasal polypus, the removal of which effected a cure. This observation has since been abundantly verified.

Seiler, Hack, and John Mackenzie subsequently brought out the fact that reflex cough was present in a certain percentage of nasal diseases. Ocular disturbances, due to intra-nasal disease, were forcibly set forth by Dr. Gruening, of New York, in a paper read before the Academy of Medicine, in April, 1886. Beverly Robinson, Cheatham, and Bettman have also reported similar cases of eye troubles of nasal origin.

Hack, in his well-known monograph, reports a large number of nasal reflexes, such as gastralgia, dyspepsia, cardiac palpitation, salivation, neuralgia, cephalalgia, migraine, ciliary neuralgia, photophobia, vertigo, and some others.

Bosworth reports cases of salivation, chorea, and epilepsy cured by treatment of intra-nasal diseases, of which they were reflexes. Salinger and Fincke also report cases of epilepsy. F. A. McBride reports a case of psychical epilepsy, and Tesin a case of nocturnal enuresis.

Many others have reported nasal reflexes covering a wide field, but the foregoing names and cases are sufficient to emphasize the reliability of the observations, and the fact that a great variety of affections may be due to intra-nasal disease.

Dr. McBride (Edinburgh) has raised the question "whether the cure of the local condition within the nose or the counter-irritant action or the application" controls the reflex. Bosworth cites Burkhardt, as quoted by Ruault (in support of the counter-irritant action), who cured a case of sciatica by cauterizing the lobe of the ear.

The question of "moral effect" has very naturally been invoked to explain many of these cures, yet I believe, with Bosworth, that while it may have some force, it is secondary in most cases, but may be the chief factor in a small percentage of cases.

The cure of intra-nasal disease is responsible, undoubtedly, for most of the successful results.

There are, then, three chief views held as to just how these reflexes are cured, viz. :—

1. By cure of intra-nasal disease.
2. By counter-irritation.
3. By moral effect.

That none of these is wholly true or entirely false I firmly believe, as the following cases will verify :—

Cases 1 and 2 show that reflex eye troubles were relieved, not suddenly, but when the local intra-nasal condition was cured.

Case 3. A case of reflex headache and vertigo was relieved by the counter-irritant action of the cauterly before the local disease of nose was favourably affected.

Case 4. A case of sciatica, cured almost immediately on cauterization of the turbinates, was doubtless relieved by the "moral effect."

Rhler Epilepsy from Intra-Nasal Disease. By Dr. JOHN O. ROE
Rochester, N.Y.

Resume:—1. That epilepsy is a frequent result of peripheral irritation, which may be excited by a local disturbance affecting the peripheral nerves in any portion of the body.

2. That the susceptibility to peripheral irritation varies greatly in different persons, as is shown by the fact that irritation of the same kind or degree will not always cause the same amount of central disturbance, or may develop reflex disturbance of an entirely different character.

3. That the nose is frequently the seat of sufficient irritation to excite a variety of reflex manifestations; that these disturbances may be confined to the brain centres, manifested in epileptic convulsions, or they may be reflected to other peripheral organs, giving rise to manifestations of an entirely different character.

4. That in the nose there are well-defined sensitive areas, which are more readily stimulated by diseased conditions, or by irritants introduced from without, than other portions of the nasal cavity.

5. That these areas are rendered inordinately sensitive to irritation by abnormal conditions in the nose, frequently independent of "neurotic habit."

6. That the undue susceptibility of these sensitive areas, and the production of reflected disturbances—especially those of epilepsy—is more often excited by intra-nasal pressure than by any other local condition.

7. That the frequency with which epilepsy has been found to result from intra-nasal disease emphasizes the importance of interrogating the nose in all cases of epilepsy, and especially in those in which the cause is in any manner obscure.

8. Citation of illustrative cases.

DISCUSSION.

Dr. PRICE BROWN (Toronto) said that he had never seen a case of epilepsy which he could trace to disease of the nasal cavities, although he had seen some exceptionally nervous patients with neurotic symptoms of such a nature that they might possibly develop into an epileptic form.

Dr. S. SOLIS-COHEN (Philadelphia) said that he believed an underlying neurotic condition to be essential to the development of these nervous symptoms. Such a condition does not necessarily give rise to marked phenomena in the absence of peripheral irritation in the nose or elsewhere.

Dr. DE ROALDES (New Orleans) agreed with Dr. Merrick that such

cases as he had reported did not always belong to the neurotic type of patients. He thought that the reflex symptoms were best explained by some direct nervous communication, especially when they developed in the area of innervation of the existing intra-nasal disease, or in its immediate vicinity where nervous anastomoses or continuity of tissue exists.

Dr. COBB (Boston) said that he had found in cases of vaso-motor rhinitis that when the obstruction was removed the asthmatic symptoms were very much relieved for a time, but that they usually returned within a year, even though the nose remained nearly clear. He thought time the great factor in deciding how much of improvement was due to suggestion, and how much to cure.

Dr. MERRICK, in closing the discussion, said that it seemed to him that anything controlling the circulation or getting possession of the nervous system was desirable. In reply to a statement made by Dr. Cohen, that quinine hydrobromate with ergot exercised a curative influence on some of the reflex symptoms associated with acute nasal disease, he suggested that this might be accomplished by the effect of the drugs in diminishing the calibre of the blood vessels in the diseased tissue, and so diminishing or removing the pressure effects, so that the cure resulted from the removal of the point of irritation by the drugs and not as a result of their general effect.

Dr. ROE, in closing, said that it was difficult to estimate in these cases how much of the constitutional disturbance had its origin in the local irritation. Nor can we say how far the general constitutional impairment has caused the susceptibility to the local trouble. In regard to general treatment the administration of drugs to quiet the nervous excitability will relieve the paroxysm only so long as the action of the drug lasts. Restorative and supporting measures are, however, of great importance, whether the trouble be of local or of general origin, since there is always a lowering of the general tone.

Hysterical Aphonia and Deafness. By Dr. E. FLETCHER INGALS (Chicago, Ill.).

Hysterical aphonia is so common that little of interest can be said concerning it. But hysterical deafness is comparatively rare. I find reports of a few cases, but have never met with it myself excepting in a single instance, a brief history of which will, I think, be of interest to this Congress. The case is that of Miss P. A. J., aged twenty-three years, and a teacher by profession, who recently came to America from Ceylon. She had been annoyed for three years by weakness of the voice, and sometimes by complete aphonia. About two years ago, while making an ocean voyage, she was greatly alarmed by a rat springing upon her. Immediately thereafter she lost the sense of hearing, and since that time has been so deaf that she could not hear ordinary conversation, and could only understand when addressed in very loud tones with the person's lips close to her ear. She had been slightly deaf before the fright, but the symptom was greatly increased immediately afterwards.

When she came to see me in the early part of July, 1893, she was still extremely nervous, and complained of dryness of the throat, inability to speak except in a whisper, and deafness so great as to require shouting to enable her to hear. Her general health was good: there was no history of predisposition to disease; pulse 100, temperature 100; no cough nor expectoration; appetite fair and digestion normal. The hearing, tested by an ordinary watch, showed that no sounds whatever were appreciated, even when the watch was placed in contact with the ear or temporal bones. The left membrana tympani was considerably thickened; the right normal.

There was no congestion of the larynx, and the cords were well approximated on attempted phonation, but this position could not be maintained. She talked only in a whisper, but upon directing her to sound the letter "a," while examining her larynx, I found that she could easily produce loud sounds. I applied a mild astringent spray to the larynx, and a spray of menthol, five grains to the ounce, to the Eustachian tubes through the naso-pharynx, the application being made by a long-tipped Davidson's No. 59 atomizer, which was introduced back of the palate, the spray being driven in with an air pressure of fifteen pounds, while the nostrils were tightly held.

She was given internally berberin muriate one grain, extract of valerian two grains, and sulphate of strychnine in doses of one-twentieth of a grain, which I proposed to increase rapidly to one-tenth or even one-eighth of a grain.

Three days later it was noted that she felt somewhat better, stating there was a "softening" in the ears, and seven days after the first treatment her friends stated that she occasionally spoke aloud, though in a low voice, and that her hearing was decidedly improved. At this time the dose of strychnine was increased to one-tenth of a grain, which produced no appreciable physiological effects. Large doses of strychnine have proved most beneficial in hysterical aphonia, and therefore I feel very confident of benefit in this case.

DISCUSSION.

Dr. S. K. MERRICK (Baltimore) suggested that the thickening of the drum membrane would indicate that possibly there was something more than hysteria to account for the deafness.

Dr. HOLBROOK CURTIS (New York City) said that he had a case of hysterical aphonia associated with deafness, but it had never occurred to him before hearing this paper that there was any connection between the hysteria and the deafness. His patient was cured of the aphonia by accidentally falling into the water, and he had not heard her allude to the deafness since.

Dr. PRICE BROWN (Toronto) said that in giving strychnia in increasing doses for such long periods he would expect toxic symptoms to appear. In the case cited he believed that the strychnia was the curative agency, not the menthol.

Dr. INGALS, in closing the discussion, said that there had been slight deafness before the fright which had brought on the severe symptoms for which she sought treatment. Sulphate of strychnia is the most important

element in the treatment. He has given patients one-eighth of a grain four times a day for weeks, and does not expect any decided effect until he gets the muscles twitching. As soon as the convulsive movements appear the dose is diminished or the remedy stopped. When the patient has been brought fully under the influence we find that two-thirds of the former dose is more than can be borne.

Effect on the Vocal Cords, etc. CURTIS.

DISCUSSION.

Dr. JOHN N. MACKENZIE (Baltimore) agreed with Dr. Curtis as to the vast importance of vocal gymnastic exercises in the treatment of affections such as he described. He thought that the subject was going to play a very important part hereafter in the treatment of minor affections of the vocal apparatus.

Dr. CURTIS, in closing the discussion, cited the case of a choir singer, who had lost her voice from a papilloma of the cord. As the result of scraping the cord and putting her on these exercises, she recovered her voice with a brilliancy it had not possessed before. By this method, too, a man who has been drinking too freely, and has a laryngitis as the consequence, may be cured in two days, a result that could not have been accomplished by the old method in less than two weeks.

Electrical Apparatus.

Two new devices to utilize the electrical current for street lighting for the uses of the laryngologist were described.

The cabinet devised by Dr. A. W. DE ROALDES (New Orleans) combined in one piece of apparatus contrivances for the most varied kinds of electrical work, including that of the surgeon, the physician, and of specialists in the various departments of medicine.

The current actually used by the operator is generated by a dynamo operated by a motor, which is furnished with power from the incandescent current from the street. While the first cost of the outfit is somewhat large (\$400), the expense of operating is reduced to a minimum. It is, therefore, rather suited to the needs of those having considerable electrical work, than of those whose need for this form of treatment is only occasional and possibly confined to one form—for instance, to the use of the electro-cautery. Although apparently a very complicated piece of apparatus, Dr. de Roaldes said the servant who attended to his office attended to it, and that it had run for seventeen months without any repairs being necessary.

In contrast with the preceding is the device described by Dr. A. G. Hobbs of Atlanta. This is designed solely for the purposes of cauterization. It derives its power from the alternating current used for lighting purposes, and is contained in a small box to be fastened to the wall. The cost of the apparatus is small (\$30), and the operating expense is merely nominal.

Electrical Illuminator. DELAVAN.

Dr. D. BRYSON DELAVAN (New York City) exhibited an electrical

illuminator which he had constructed to adapt the incandescence electric light to the purposes of the laryngologist, and which he had been using for a year and a half with success. In order to secure the desired result, it was necessary to use a lamp with a peculiar loop. The lamp presented was provided with a single filament, convoluted in about five folds, the object being to collect a strong mass of light at one point. This mass of light, when the lamp is held horizontally, is fairly concentrated in the lamp itself. A convex lens, the surface of which is ground, is placed between the light and the reflector, so as to take away its dazzling properties and to distribute it evenly over the surface. The shade of the lamp is plain. The lamp, which has forty candle power, is set in the cylinder so that the filament points in a direction perpendicular to the lens fixed to the opposite end. Connection with the street current is made by means of a plug, and the current is regulated by a cut-off. The cost of the apparatus is about twelve dollars.

MEDICAL SOCIETY OF CHRISTIANIA.

Meeting, October 11th, 1893.

V. UCHERMANN demonstrated a case of a woman, aged thirty-five, with phthisis of both lungs, on whom he had performed intubation of the larynx on account of paralysis of the right posticus and of the left recurrent nerve, with swelling of both vocal cords and ulceration of the left vocal cord. The immediate cause of the stenosis necessitating intubation was the circumstance that the narrowing of the glottis prevented the expectoration of a large mass of muco-purulent discharge. Four weeks later the canula was removed; the position of the vocal cord was unchanged, but the tumefaction had disappeared and the respiration was quite free.

Holger Mygind.

REVIEWS.

Pharmacopœia of the Hospital for Diseases of the Throat. Fifth Edition. By F. G. HARVEY, F.R.C.S. Ed.

MR. HARVEY has carried this edition quite up to the needs of the present day, and it will be valued by all who wish to have so concise and handy a book of reference. The principal additions are in the nasal douches, mixtures, insufflations, pigments and pills. The vapours are almost as in the last edition. Again, in the "guttæ" there are some most valuable additions, and the original lotio-alkalina is no more, but its place is well supplied; there is no noticeable loss in the general improvement and advance.

R. Lake.

Syphilis in the Innocent (Syphilis Insontium). Clinically and historically considered, with a plan for the legal control of the disease. By L. DUNCAN BULKLEY, A.M., M.D., Physician to the New York Skin and Cancer Hospital; Consulting Physician to the New York Hospital; lately Professor of Dermatology, New York Post-Graduate Medical School and Hospital. New York: Bailey and Fairchild, 29, Park Row.

THE name of the author on the title-page of this essay is a guarantee to the reader that he may safely count upon the subject being discussed in all its bearings, in a thoroughly systematic manner, and by a master hand. We have here the results of ten years' study and research, the author having actually laid under contribution writings in a dozen languages. The first half of the work consists of several chapters, in which the modes of infection, the geographical distribution of the disease, and the location of extra-genital chancres are discussed in detail. The most interesting chapter is that in which the author narrates those cases—one hundred and thirteen in number—which have come under his personal observation, arranged according to the region in which the primary lesion occurred. The causes and methods of the spread of syphilis in the past and present—epidemic, endemic, and sporadic syphilis—are carefully investigated, and a tabular statement is given of one hundred and ten epidemics chronologically arranged.

A passage of special interest to laryngologists is that in which Dr. Bulkley discusses those cases in which syphilis has been communicated by means of Eustachian sounds and catheters, by tongue spatulas, laryngoscopes, etc. In this connection he refers to the case of the Parisian aurist, who communicated the disease to more than sixty people.

In his last chapter—on the subject of prophylaxis and the legal control of syphilis—the author's conclusion is absolute: "Syphilis should be placed, like 'other contagious diseases, under the control of the health authorities....The 'time has come to make it quite as criminal to transmit syphilis wittingly, as it is 'to communicate smallpox, scarlatina, or diphtheria.'"

The synopsis of facts and literature relating to syphilis insontium and the analytical bibliography form a full half of the book, and render the work complete as a book of reference.

The Discovery of Modern Anæsthesia. By Dr. L. H. NEVINS.

THIS book of one hundred and eleven pages, with fourteen illustrations, discusses very fairly the merits of the various claimants, and contains some interesting particulars concerning their priority in the use of anæsthetics, but we strongly protest against the unfairness of a work which professes to give the true history of modern anæsthesia ignoring the innumerable scientific experiments made by Sir Humphrey Davy, and published to the world in his book of researches on nitrous oxide in 1800. At p. 556 he wrote: "As nitrous oxide in its extensive operation 'appears capable of destroying physical pain, it may probably be used with 'advantage during surgical operations in which no great effusion of blood takes 'place." Nitrous oxide and sulphuric ether were frequently given to young people on the platform at popular lectures on chemistry and natural philosophy, as well as at social gatherings, where young people amused and entertained themselves. It was from seeing the effects of ether at these social parties, and experimenting on himself, that Dr. Long (Georgia) got the idea of trying it in surgical cases; his first operation was on March 30th, 1842. In like manner, Horace Wells, dentist, got the idea of using nitrous oxide for tooth extraction while at a popular lecture given by Mr. Colton. Next day he had a tooth extracted under it. When it was finished he exclaimed, "A new era in tooth-pulling." A month after he gave a

public demonstration at Boston Hospital. This failed, as the patient was not fully anesthetized; it ruined Wells.

Mr. W. T. G. Morton, who was present at the hospital, had been a partner with Wells, and wished to try the action of nitrous oxide. He called on Dr. Jackson, a practical chemist, for some of the nitrous oxide gas, who could not give him any. He said its manufacture was difficult, and there was the risk of nitrous acid gas being mingled with the nitrous oxide. Jackson advised Morton to try sulphuric ether as being safe and certain, being inhaled often by the students of Cambridge University, U.S., for amusement. Morton used it successfully on September 30th, 1846. The next day he called on a patent lawyer, R. E. Eddy, who thought Dr. Jackson ought to be associated with him. The patent was granted November 12th, 1846, No. 4848. Morton named it "letheon," and flavoured the ether with aromatic oils. The surgeons declined to continue its use until he declared its composition. Numerous litigations from infringement resulted. Government failed to recognize its validity.

The discovery of chloroform in Scotland in 1847, and the enthusiasm in the practice of ether, had caused the neglect of the use of nitrous oxide. Mr. Colton made a fortune in California, and lost it by bad investments on his return to New York. He resumed his lectures on chemistry. He called a meeting of doctors, etc., in June, 1863. He told all about Wells' discovery. He showed numerous testimonials of those operated on. The meeting adopted the practice. Having made more than twenty thousand administrations, Mr. Colton visited London, where he was toasted and feasted. The first operation of tooth extraction in the London Dental Hospital took place in 1868.

The tangle of competing claimants for the honour of discovering anæsthesia was so complex, and their partisans among the Senators of Congress of the United States were so urgent, that, when Morton applied for a reward for his discovery—as Jenner to the British Parliament for vaccination—Congress declined to settle who among the four was the first—Morton, Long, Wells, Jackson each having warm advocates among the Senators. There is due acknowledgment of the great discovery of chloroform by Sir Jas. Y. Simpson, and notice of the attempt by the surgeons of the Massachusetts General Hospital in 1870 to steal this honour from him.

Brown Henderson.

Pyogenic Infective Diseases of the Brain and Spinal Cord: Meningitis; Abscess Brain; Infective Sinus Thrombosis. By WILLIAM MACEWEN, M.D.
Glasgow: James Maclehose and Sons. 1893.

At the time when the British Medical Association met in Glasgow it was doubtless a surprise to many to find what brilliant work in brain surgery had been carried out in a somewhat unostentatious way, and outside the Metropolis, by the eminent Scottish surgeon whose book is in our hand. It is now, however, the most natural thing in the world for us to have in print a statement of his views and practice in the department of surgery with which he so thoroughly identified himself, in our minds, by his striking demonstration before the Association.

The first section treats of the surgical anatomy of the subject, and includes a very full description of the temporal bone at different periods of life in relation to intracranial inflammations. This is eminently readable and graphic, the detailed facts being impressed upon the memory by their relation to development or surgical importance. As happy illustrations of applied surface marking we may cite the statements that a line drawn vertically through the centre of the osseous meatus corresponds to the posterior wall of the tympanum and the opening into the antrum, and that the posterior superior border of the petrous bone lies in a line

running from the parieto-squamo-mastoid junction to the external angular process of the opposite side. The description of the course of the facial nerve is very full, but it seems hardly so clear as that given by Politzer, although identical in all its facts. The writer revels in the enumeration of the relations of the venous channels connected with the sinuses of the skull. This is obviously the groundwork of his arguments against the practice of ligaturing the internal jugular vein in cases of sinus-phlebitis, and he says: "Though the internal jugular is the main channel "by which infective matter is conveyed from a thrombus of any part of the lateral "or sigmoid sinus, yet it may also be carried by way of the posterior condyloid "vein, the occipital sinus, and the vein through the mastoid foramen, all of which "pour their contents indirectly into the subclavian and innominate, without "passing through the internal jugular" (p. 32). A most interesting account is given of the mechanical arrangements preventing emptying of the venous sinuses by aspiration during inspiration (pp. 33 to 38). The subdural space is defined as "the potential interval between the dura mater and arachnoid." Much ambiguity is thus avoided. The unfortunate application of this term to the extradural space has led to much confusion. Dr. Macewen considers the risk of danger from extravasation of blood into the subdural space so great that, in the removal of very vascular intracranial tumours, he sometimes divides the operation into two stages, the first to secure adhesion of the membranes, thereby obliterating the subdural and subarachnoid spaces, and secondly, proceeding with the tumour removal. He insists on caution in syringing, so that fluids may not be disseminated in this space.

The chapter on the pathology of cerebral abscess and meningitis is a long one, full of observations and reflections of the most suggestive and practical kind. The various channels of infection (with and without visible tracts of inflammation) and the kinds of injuries and pathological conditions leading to intracranial disease are fully discussed. We may refer to the explanation of the occurrence of infective venous thrombosis backwards against the normal direction of the blood, namely, the reversal of the current which follows obstruction of the larger venous channels on the cardiac side (p. 51). The observations pertaining to intracranial lesions secondary to otitis media are of course those of most interest to us. The writer recognizes the identity of the organisms in the purulent secretion in the brain with those found in the ear, from whose disease it springs, but he holds that "their "variety is such as to prevent a selection of any one as being pre-eminently more "potent than others in producing extension of the inflammatory action to the brain" (p. 53). He warns us against assuming that the factor of an otorrhœal discharge is a measure of its virulence, and advises that the pus should be stained and examined microscopically, and by cultivations (p. 55). He asserts that the thin tegmen tympani may readily fracture during the vigorous employment of gouge and mallet in mastoid operations (p. 67), and impresses on us by the relation of illustrative cases the fact that granulations growing from the dura mater may sprout through the tegmen into the tympanum, and that forcible attempts at their removal—as polypi—may set up lepto-meningitis (pp. 69 and 92), a danger apt to be induced even by the removal of granulations arising from the tympanum itself, the wound permitting of septic infection. A special sub-section of great practical interest is devoted to the consideration of tuberculosis and "carcinosis" of the middle ear, the former often insidious and painless, and apt to be overlooked beside the glandular and meningeal affections of which it is frequently the cause. Carcinosis is a rare disease, accompanied by severe pain, which may simulate that of meningitis or cerebral abscess (pp. 124 to 129).

The symptomatology of cerebral abscess and meningitis is admirably analyzed and elucidated in the text, but the cases as narrated form a clinical picture gallery,

full of matter for reflection and instruction to the advanced surgeon as well as the student. Among other less-known details are the occurrence of oculo-motor paralysis of the affected side with hemiplegia of the opposite one in some cases of temporo-sphenoidal abscess (p. 154), the anatomical relation of the third nerve to the temporo-sphenoidal lobe being well shown in plates 41 and 45 of the "Atlas of Sections of the Head" simultaneously published. Again, the occurrence of spasmodic closure of the jaws in cases of cerebellar abscess is indicated and exemplified (p. 195). An explanation is given of transitory aphasia, which is found in some cases of abscess in the white substance of the third left frontal convolution (p. 191). The diagnosis of the various intracranial suppurative diseases is given very clearly, the symptoms produced by combinations and complications being set forth in a few invaluable pages (pp. 221-225). The general pathology of thrombosis—marasmic and infective—is dealt with in the introductory portion of the chapter on infective disease of the cranial sinuses.

The section on phlebitis of the cavernous sinus should be studied by every surgeon who treats the nose, so that he may reckon with the possible—though fortunately rare—consequences of neglected or injudiciously treated disease of the nose and its accessory cavities. One of the most interesting sections of the book is that dealing with the diagnosis of thrombosis of the sigmoid sinus, giving cases of each of the three clinical varieties—the pulmonary, the typhoid or abdominal, and the meningial. The formation of periphlebitic and phlebitic abscesses in the region of the internal jugular vein, or in that of the posterior condylar and other veins in the posterior triangle of the neck, is specially referred to. The writer considers the occurrence of abscesses in the line of the internal jugular rather favourable, "as it shows that for the time there is a localization of the process of "disintegration," for "when these intravenous abscesses do form in the neck, the "portions of the veins below are occluded with a firm thrombus, which though "exposed and liable to the same disintegration as that which overtook the upper "part of the thrombus, is yet frequently sufficiently firm to form a barrier between "the lungs and the abscess" (pp. 265, 266). The prognosis is naturally most unfavourable in cases not submitted to treatment, but we are reminded that "at "post-mortem examinations, however, there are occasionally found instances of "long-standing obliteration of the internal jugular and sigmoid sinus in connection "with infective caries and disintegration in the temporal bone" (p. 268). Every careful pathological dissector of experience must have made a similar observation, without, however, feeling that abstention from operation was justifiable.

The chapter on treatment commences very properly with prophylaxis, and contains an important paragraph, headed "*The Treatment of Middle-Ear Disease—too frequently neglected*," in which occurs the forcible remark that a person might as well have "a charge of dynamite in the mastoid antrum and cells, as "one cannot know the moment when accidental circumstances may arise, which "may cause the infective matter to become widely disseminated all over the cerebro-"spinal system" (p. 294).

No doubt many die from the sequelæ of chronic suppurative otitis, but the stress laid by the author upon the "fact that the records of most aural hospitals show that their patients are all confined to the earlier decades of life," is certainly too apt to lead to the extreme interpretation that none survive to enter the later decades, in view of the "fact" that aural surgeons have constantly to deal with the functional disturbances due to the cicatricial conditions accompanying the healing of long-exhausted suppurative otitis in adults. The indications for mastoid operations, and the details of the manner of performing them, are most succinct. The author agrees entirely with Schwartz's indications, but makes no

reference to the modifications of Schwartz's operation effected by Stacke and others, and now approved and practised by Schwartz himself. Dr. Macewen prefers the rotating burr to the chisel and mallet, and certainly his claims on its behalf seem very convincing, though we cannot help thinking that in the hands of the average general surgeon the latter instruments are less dangerous. The anatomical points are particularly clearly described, and the cautions with regard to safeguarding the facial nerve, and to the possibility of granulations finding their origin in the dura mater, are invaluable. The method of occluding the upper two-thirds of the sigmoid sinus, which the author considers sufficient in most cases after removal of the disintegrated part of the clot therein contained in septic thrombosis, consists in pushing the outer wall inwards, and keeping it compressed against the inner one by means of a plug of iodoform gauze or catgut, after the application of a quantity of boracic acid and iodoform.

In regard to ligation of the internal jugular in cases "where the infective thrombus has undergone such extensive disintegration as is unlikely to be reached by obliteration of the upper two-thirds of the sigmoid sinus" (p. 310), there is no record of its performance in any of the cases narrated. The details of the management of patients after the evacuation of abscesses are fully laid down. In acute cerebral abscesses he employs no drainage tubes, and in the chronic only those of decalcified bone. The cautions with regard to syringing are most pertinent.

The results are analyzed most candidly and intelligibly. The author's acumen in the classification of types of cases is, in this chapter, pre-eminently conspicuous. The cases calling for "ablation of the mastoid" are divided into those in which the disease is confined to the mastoid antrum and cells, and those in which it has extended forwards and upwards to the internal ear. In the former a cure of the discharge was always obtained, but in the latter in five out of sixteen, the other eleven being much improved. In this latter class of cases the permanent opening in the mastoid afforded great safety. Seventeen cases of pachy-meningitis were operated on and recovered. Of twelve cases of lepto-meningitis six were operated on with recovery, the *previous* six all died without operation, the author having "at that time" considered them hopeless. We cannot offer our readers a more convincing or inviting evidence of the solidity of the whole work on which this monumental treatise is founded than the statistical tables of results which we append in full, conscious that in so doing we are not "giving away" what is likely to satisfy intending readers who will not procure the work, but rather encourage them to provide themselves with the full text of the instructions how to achieve similar, if not equal, success.

I.—*Statistical Table of Ablations of Mastoid Antrum and Cells for Pyogenic Otitis Media.*

Disease.	No. operated on.	No. cured.	No. relieved.
Purulent otitis media, with extension limited to mastoid antrum and cells	38	38	—
Purulent otitis media, with extension in addition to petrous bone and its recesses	16	5	11
	54	43	11

II.—*Statistical Table of Infective Intracranial Lesions.*

Disease.	No. of Cases.	No. operated on.	No. cured.	No. died.
Pyogenic pachy-meningitis externa ...	17	17	17	0
Extradural abscess.....	5	5	5	0
Pyogenic cerebral lepto-meningitis ...	12	6	6	6
Pyogenic cerebro-spinal lepto-meningitis ..	6	5	1	5
Superficial brain abscess and ulceration	4	4	4	0
Cerebral abscess—				
Temporo-sphenoidal.....	10	9	8	2
Frontal	2	1	1	1
Parietal	1	1	1	0
Cerebellar abscess.....	8	4	4	4
Meningo-encephalitis of frontal lobe ...	1	1	0	1
Total necrosis of temporo-sphenoidal lobe.....	1	1	0	1
Thrombosis of longitudinal sinus	4	3	3	1
Thrombosis of cavernous sinus	5	0	0	5
Thrombosis of sigmoid sinus	18	17	13	5
TOTAL.....	94	74	63	31

III.—*Statistical Table of Intracranial Abscess.*

Disease.	No. of Cases.	No. operated on.	No. cured.	No. died.
Cerebral abscess—				
In temporo-sphenoidal lobe.....	10	9	8	2
In frontal lobe	2	1	1	1
In parietal lobe	1	1	1	0
Superficial (ulceration of brain)	4	4	4	0
Cerebellar abscess.....	8	4	4	4
TOTAL.....	25	19	18	7
Extradural abscess	5	5	5	0
TOTAL.....	30	24	23	7

Dr. Macewen needs no further evidence of the masterly character of his work, from a scientific and practical point of view, to place him in the very front rank of Scottish or any surgeons.

Dundas Grant.

Letter to the Editors.

To the Editors of THE JOURNAL OF LARYNGOLOGY.

SIRS,—It is with great interest and pleasure that I find Dr. Hollbrook Curtis, of New York, has recorded his valuable observations. It is, however, not the first time that these appearances have been noted. Years ago my husband, the late Emil Behnke, observed tiny wart-like growths; thickening and bulging; frayed or serrated edges; and striated, and generally congested appearances of the vocal ligaments. I have also met with examples in my own work. The remedial exercises adopted by Mr. Behnke were similar to Dr. Curtis's, in so far that he insisted on the use of diaphragmatic and inferior costal breathing, but the vocal exercises were different. The employment of the vowels "ah" and "o," as instanced by Dr. Curtis, can have no influence in producing the results above enumerated; vowels being formed by the different positions of the mouth, soft palate, teeth, and lips, and not by the varying adjustments of the vocal ligaments. Those cases of nodules that came under Mr. Behnke's notice, and also those in my own work, have not been caused by the use of the *coup de glotte*, but by that closure which is called the "check" of the glottis. In the "check" of the glottis, "the vocal ligaments meet *before* the air has had time to reach them, the pyramids "come into close contact with their inner surfaces, and the vocal ligaments are "held firmly together. The gate is securely shut, the air accumulates below, "until the pressure becomes great enough to overcome the resistance above. "Then the gate is forced upon, and the action is accompanied by a distinct "click.'.....It is generally followed by a continued tight closure of the vocal "ligaments, so that the air has, from the beginning to the end, an unnecessary "amount of opposition to overcome. This also interferes with the tone, and "makes it hard and metallic." In the *coup de glotte* "the vocal ligaments meet "just at the very moment when the air strikes against them: they are, moreover, "not pressed together more tightly than is necessary. No obstacle has to be "overcome...but the attack is clear and decisive, and the tone 'gets a proper "start.....The closure of the vocal ligaments being maintained at the most "suitable degree, the tone production is carried on, so far as the glottis is "concerned, under the most favourable conditions, and the result is the best that "can be obtained." ("Voice, Song, and Speech," Browne and Behnke: p. 128.)

If the "check" of the glottis be continually and energetically used, injury to the delicate membrane is a certain result, and also to the muscles which govern the closure of the glottis, *i.e.*, the lateral crico-arytenoidei, and with them the arytenoideus. Hence the condition of the cords which Dr. Curtis observes. The striated appearance of the vocal ligaments, and congestion of the pharynx mentioned by him, I have, in my own work, found to be caused, not by vocal practice on the vowel "o," but by wrong use of the registers. "A register is a series of tones produced by the same mechanism." (Behnke: "Mechanism of the Human Voice.") When that mechanism is employed beyond its natural limits, great strain is plainly visible in the ligaments themselves and in the surrounding parts, which look red and angry, and its continuance leads to chronic congestion. After medical treatment has removed the results of such erroneous vocal methods, practice on the right use of the registers will speedily remove congestion, and vocal tone will be fuller and more resonant.

Dr. Curtis says, "Be careful that the initial attack is removed entirely from

the cords." The right focus of re-spiratory attack is against the vocal ligaments ; it is as impossible to make any tone if the attack is taken from the cords as it is to get notes from a wind instrument by directing the breath anywhere but against its vibrating element. There are other debatable points in Dr. Curtis's theories of voice training, but I must not encroach further on your valuable space to refer to them. Nevertheless, if the results he obtains are so good, we must be thankful to him for calling our attention to them.

I am, Sirs, yours respectfully,

K. BEHNKE.

[We have no intention of opening these columns to a discussion of matters of interest merely to musical instructors, and the argumentative questions of singing registers, &c.—EDS. J. of L.]

NOTES.

THE Editors desire to express their acknowledgment for the very able manner in which the proceedings of the British Medical Association Meeting, lately published in this Journal, were reported by Dr. WATSON WILLIAMS (Bristol) and Dr. MILLIGAN (Manchester).

ON Thursday, the 25th of October, the celebrated otologist, Dr. W. MEYER, of Copenhagen, attained the advanced age of seventy. Dr. MEYER, who is in full enjoyment of perfect health and undiminished vigour, received on the occasion a very handsomely bound address from the younger specialists in Denmark as a mark of the esteem and appreciation which is so justly due to him, not only as one of the most distinguished otologists of this century, but also as a friend and colleague.

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TURBINAL VARIX.

By WYATT WINGRAVE, M.R.C.S.,

Assistant Surgeon Central London Throat and Ear Hospital.

Definition.—Turbinal varix may be defined as a particular form of hypertrophy which involves the posterior half of the inferior turbinal body, and characterized by a permanent distension of the venous sinuses.

Morbid Anatomy and Pathology.—Nasal obstruction with catarrh is usually referred to under the comprehensive term hypertrophic rhinitis, which embraces nearly all forms of thickening of the mucous membrane. But as there are many varieties of hypertrophic rhinitis, varying in degree from simple swelling to localized accentuations constituting polypi, it will be expedient to classify them according to the predominating morbid changes and in their order of frequency, under four chief forms, viz. :—

1. Vascular.
2. Mucoid.
3. Lymphoid.
4. Glandular.

In the simple and temporary cases, each or all of these changes may be found—it is therefore somewhat difficult, even microscopically, to decide which variety is represented; but when the disease assumes a chronic or permanent character certain features will predominate and readily determine its nature. It is to a special form of the vascular group that your attention is now directed, which, although occurring occasionally in the middle turbinal, and even in the septum, will be found to constitute a disease almost peculiar to the inferior turbinal itself.

A glance at a normal inferior turbinal will at once throw some light upon this peculiarity. The anterior two-thirds or half appears perfectly smooth, but the posterior portion and lower border presents a striking and sharply defined contrast, being rough, swollen and wrinkled, even after soaking in spirit.

Serial sectioning equally accentuates the contrast, for whilst the smooth region is characterized for the most part by the presence of glandular and lymphoid structure, the wrinkled part is mainly occupied by cavernous vascular spaces lined by epithelioid plates. These vascular channels, the "*Schwellkorpe*" of Zuckerkandl, are surrounded by several layers of visceral muscle fibres arranged for the most part in circular and longitudinal directions, whilst some form a series of interlacing bands continuous with obliquely disposed bundles which traverse the intervening connective tissue.

Many writers seem to have entirely ignored these muscle fibres; even so high an authority as Greville Macdonald describes the venous sinuses as "consisting of a thin layer of connective tissue apparently not elastic and lined with endothelium."¹ He further states that he failed to find muscular fibres in the trabeculæ. This oversight is probably explained by the fact that specimens were examined whose walls were already the seat of morbid changes. These cavernous spaces are apparently supplied by thin venous radicles which, commencing in the hyaloid basement membrane, run a comparatively straight course inwards through the lymphoid and connective tissue to open obliquely in the sinus. In some sections the sinuses are distended with blood, whilst in others they are quite empty and tortuous, a condition which has been described as "collapse." This variation doubtless depends upon their condition when removed and the methods of removal. Although their general arrangement does not conform entirely to that of the corp. cavernosa and corp. spongiosum, the slight histological difference does not justify the view that their nature is not erectile, and that they are never erectile in health or disease (as maintained by Bosworth),² still less so in the light of the remarkable sympathy which these bodies exhibit with sexual and developmental phenomena.

Your attention is specially directed to these muscular fibres, because in their morbid conditions is to be found an interpretation of the pathology of one form of turbinal disease.

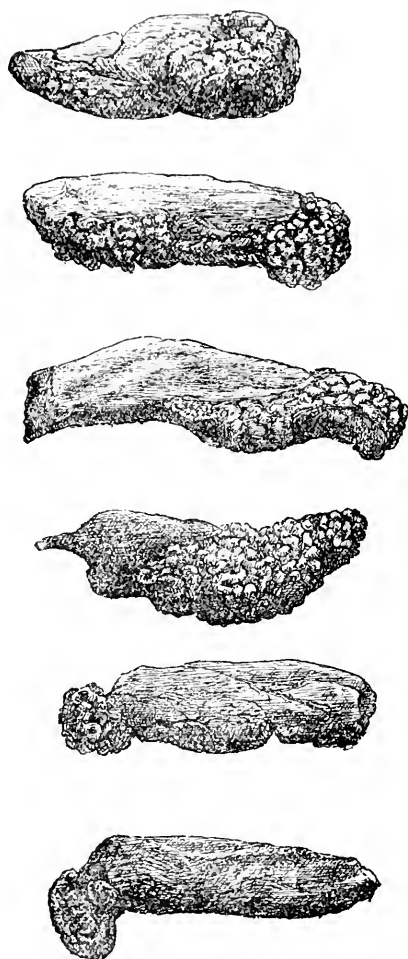
Owing to the courtesy of my colleague, Mr. Carmalt Jones, an abundant supply of material has afforded me an opportunity of tracing the varying degrees of degeneration which this erectile tissue undergoes, and the conditions were so constant in their appearance as to justify the view of a more than merely coincidental connection.

The peculiar villous or brainlike macroscopic appearance of the surface was seen microscopically to correspond with a cystic invagination of the surface epithelium, covering distended loops of vessels with very thin walls, imbedded in mucoid tissue—that is, connective tissue in which the matrix was in excess of the fibrous reticulum and cells.

¹ Greville Macdonald, "*Diseases of the Nose*," pp. 14 and 16.

² Bosworth, "*Treatise on Disease of the Nose and Throat*," Vol. I.

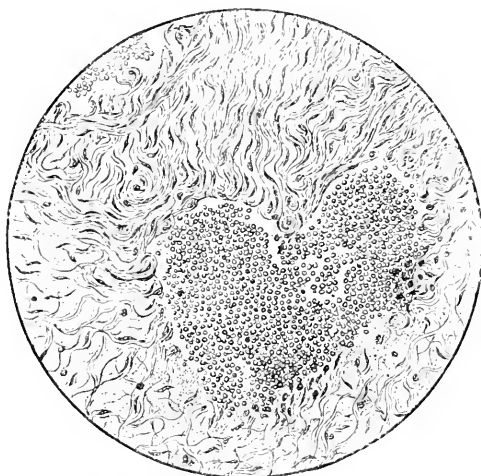
The muscular walls of the vascular sinuses presented well-marked atrophy and degeneration, varying from simple thinning to complete disappearance, owing to the fibres apparently sharing the surrounding



Portions of Turbinals exhibiting different degrees of Varix (*Nat. size*).

mucoid and œdematous changes. In places the intervening mucoid tissue simply formed their boundaries, whilst in other parts the walls seemed to have undergone fibrotic changes. This condition is, therefore, not a mere hypertrophy of the structures, but consists of a true degeneration and infiltration of the walls of these vascular spaces, a morbid process which is responsible for the disease; for the walls gradually losing their power of *active* recoil, the vessels by degrees become more and more distended, and a permanent enlargement ensues, which is in fact a varix.

Etiology.—The conditions which favour the development of this disease are so gradual and progressive in their influence that it is somewhat difficult to discriminate between the direct or immediate and



Section of the Posterior End of an Inferior Turbinal, exhibiting degeneration of the Muscular Fibres of a Vascular Space ($\frac{1}{2}$ in.)



Section of the Posterior End of an Inferior Turbinal with dilated Vascular Space (low power).

the indirect or remote causes. Whilst admitting that a persistent exaggeration of the functions of the turbinal bodies may constitute a predisposing factor, it is difficult to believe—particularly in the light of the histological changes—that simple hypernutrition could be followed by any change other than hypertrophy of the vessel walls. But given a

tendency to mucoid degeneration or diathesis, due probably to some tropho-neurotic influences (local or general), excessive erectile activity of the parts must play an important rôle. In some instances the presence of an excess of small-cell tissue is strongly suggestive of an inflammatory process preceding the mucoid changes, and from the frequency of this disease among the London east-end aliens it is highly probable that various unhygienic conditions of living, such as prolonged exposure to very dry or very moist atmospheres, more or less charged with impurities particulate and gaseous, must exercise marked predisposing influences, by keeping up constant irritation. That there is an hereditary tendency to hypertrophy of the mucous membranes of the nostrils there can be but little doubt, and this is often associated with a highly emotional temperament. With regard to sex, males appear to be more frequently affected than females, in the proportion of about five to three.

Although considerable enlargement of the turbinals may be seen in early youth, turbinal varix is extremely rare before puberty, but after this period it may appear at any age.

All conditions in which the venous flow is interfered with, such as intemperance with its attendant hepatic troubles, gout, pulmonary and cardiac diseases, with sedentary habits, will naturally be predisposing factors, for in most of the well-marked cases varix was present either in the tongue, legs, anus, or spermatic cord.

The presence of enlarged faucial and pharyngeal tonsils will, doubtless, predispose by favouring nasal catarrh, and by mechanically interfering with the venous flow, but the coincidence of adenoids is by no means frequent, which is not surprising, considering the age.

Excessive use of the nasal douche must not be overlooked, but perhaps by far the most likely exciting or direct cause will be found in the different forms of nasal stenosis, such as morbid states of the septum, collapse of the alæ and general thickenings of the nasal mucous membrane, which not only favour catarrh and the accumulation of its products, but by obstructing nasal breathing cause exhaustion or rarefaction of the air posteriorly and consequent expansion of the venous sinuses, whose muscular walls may be already undergoing œdematous changes.

Thus, nasal obstruction, combined with a predisposition to varix and mucoid œdema, may be considered as mainly responsible for this disease.

Symptoms.—Collectively the symptoms are those of nasal stenosis, such as mouth-breathing and its inevitable sequelæ, parosmia, anosmia and middle-ear troubles, especially distressing tinnitus. But there are several which from their constancy and persistence possess a special significance, viz., a shiny, sanguinolent discharge, generally expectorated in large quantities on waking, and not euphemistically described by patients as "blood and corruption," occasional attacks of severe epistaxis, and either painful tenesmus of the faucial and pharyngeal muscles or paresis of the palate. These constitute a group of phenomena interesting in their striking resemblance to those of piles elsewhere, and are in themselves almost pathognomonic of the disease.

Diagnosis.—Owing to the swollen state of the nasal mucous membrane a view of the posterior half of the inferior turbinal by anterior rhinoscopy

is generally difficult, whilst a satisfactory posterior rhinoscopic image is prevented by the frequent faucial tenesmus, but a thorough cleansing followed by the application of cocaine will greatly facilitate an inspection in either direction.

If seen from the front a dull red or purple mass may be found at a varying depth, on one or both sides, which does not shrink much under cocaine, but readily yields to the probe, and does not change its position on forcible respiration—features which will enable an experienced observer to exclude ordinary catarrhal tumefaction and simple polypus. Still it not unfrequently happens that the actual conditions can only be appreciated by a successful posterior rhinoscopy, which will reveal a red or purple brain-like mass projecting into the post-nasal space on one or both sides.

In all instances, however, digital examination will at once afford by far the most reliable and available evidence. A soft resilient yet sharply circumscribed symmetrical mass will be felt on each side of the nasal septum, free all round, except at its attachment to the inferior turbinal bone.

This evidence, together with the existence of varix elsewhere, faucial tenesmus or paresis, blood-stained discharge, and the general history, will sufficiently indicate the nature of the lesion and enable a satisfactory diagnosis to be made from other forms of hypertrophic rhinitis, from polypi, and from other neoplasms, innocent and malignant.

Prognosis.—Should the foregoing description and interpretation of the morbid anatomy be correct, it is obvious that the possibility of a spontaneous cure is most remote, for the tendency will be towards a gradual but certain increase in the size of the varix. The clinical history of these cases amply confirms this view, for although the severity of the symptoms may vary, or even sometimes apparently remain stationary under palliative treatment, the almost inevitable result is that radical measures are demanded sooner or later. But it is quite possible that milder forms may, by judicious treatment, be arrested in the early stage. Should treatment, however, be delayed for several years, the enlargement assumes such proportions that on surgical attention becoming urgent by reason of the profuse bleeding and the stenosis, a diagnosis of angio-myxoma, papilloma, or some other form of nasal growth is often made.³ General thrombosis of the mass is a somewhat rare termination.

Treatment.—The treatment will be palliative and radical. Palliative remedies, such as alkaline and astringent douches with general depletion, can only afford temporary relief, and must only be considered as preliminaries to a more thorough and permanent treatment.

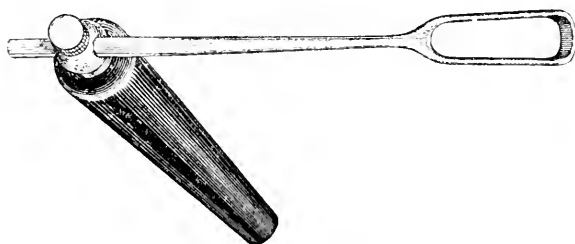
The radical measures will be directed first towards the removal of obstructions in the anterior regions of the nostrils, afterwards to the treatment of the varix itself. Should any mucous polypi be present they must be removed, and any localized hypertrophy of the anterior end of

³ Sandford, "Transactions of the British Laryngological and Rhinological Association," vol. iii., p. 13; Luc, "Archives de Laryngologie," Dec., 1890; Spencer Watson, "Journal of Laryngology," July, 1893, p. 329. Coincidence of Lingual with general Varix, Paretic Velum and Tenesmus.—*Vide* "The Throat and Nose": Lennox Browne, London. Baillière, Tindall & Cox, 1893, p. 573.

the turbinal bodies or septum should be reduced by galvano-cautery, chromic acid, or snare. Activity of collapsed alæ may be restored by massage and wearing short pieces of rubber tubing, or the nasal rings made by Hawkesley. The portal system should be depleted by a mild course of mercury and chalk, or saline aperients.

Direct treatment will be determined by the size and duration of the varix, and its response to the action of cocaine, for should it be small, and of probably only a few years' duration, it may more readily contract. This degree of hypertrophy will most likely yield to the galvano-cautery, which should be applied either by plunging a fine point well into the substance of the cavernous tissue, or by deeply scoring it with the fine edge of a flat point. Fused chromic acid, if applied *secundum artem*, is often very satisfactory. A slough generally separates about the fifth day, and cicatricial fibrosis, with strangulation of the enlarged vascular spaces, soon follows. Both nostrils should on no account be cauterized at the same sitting. When the swelling, however, is very large, and does not shrink under cocaine, caustics are absolutely useless, and complete removal is necessary. This may be effected either by means of a snare or a cutting instrument. Of the former the cold snare or *écraseur* is preferable to the galvanic, for it will, if necessary, cut through a portion of the bone, and if gradually tightened will not be followed by much hæmorrhage, nor will it cause any subsequent sloughing, as is often the case with the galvanic loop.

If only soft tissues are to be removed Krause's snare succeeds admirably, but either Jarvis' or Wilkin's is preferable when it is decided to include the bone. As a rule, there is no difficulty in engaging the swelling if the wire is directed by a finger in the post-nasal space. But by far the most satisfactory results, as far as complete enucleation is concerned, are to be obtained by the ring or draw-knife as introduced by



Carmalt Jones' Improved Ring Knife.

Spencer Watson in 1881, and greatly improved by Carmalt Jones. It has the great advantages of being effective, rapid, safe, and painless, only ordinary dexterity being demanded by the operator.

The operation is conducted as follows:—The patient is seated on a chair in the usual position for nasal inspection, the head being steadied by an assistant. After freely cleansing the nostrils with an antiseptic

douche and applying cocaine (a mouth prop being introduced at discretion), the knife is introduced into the nostril, with its cutting side directed towards the diseased turbinal; the guarded index finger of the disengaged hand is passed by the mouth into the post-nasal space, and directs the ring into its proper position around the varix. The shaft is then directed slightly towards the opposite side of the face and sharply but firmly withdrawn in that direction, cutting its way through the turbinal body, which either escapes at the same moment or is subsequently removed by forceps should it not be dislodged by patient blowing down the nostrils.

By keeping the axis of the instrument across the median line and by varying the angle, it is possible to remove only the particular part which is diseased, so that the anterior and healthy portion is left intact, and the possibility of laying open the maxillary sinus is reduced to a minimum. The opposite side is then treated in the same way. Bleeding is generally profuse for a few minutes, but is easily controlled by dry tannin and lint plugs. These should be followed by plugs of boric lint firmly packed and left in for twelve or twenty-four hours, absolute rest in the semi-recumbent position being insisted upon. The plugs are removed at discretion on the second day, when the nostrils should be gently cleansed with Dobell's solution.

Owing to the rapidity and almost painlessness of the operation, the major anaesthetics are neither necessary nor are they expedient, cocaine proving quite sufficient; still, in the case of very nervous patients, gas may be exhibited with advantage, for the operation is easily completed during its influence.

The use of the ring knife has one advantage in particular over the snare, in that it removes all the diseased tissue at once; for it often happens that the varix extends for some distance along the inferior border of the turbinal, and is very difficult to include in the snare.

Complications.—Two important complications are to be guarded against, viz., septic changes and secondary hæmorrhage. The first of these need not be feared if ordinary antiseptic precautions are taken, especially with regard to local cleansing before and after the operation, for, beyond a slight elevation of temperature, in upwards of 200 cases of turbinotomy, at the Central London Throat and Ear Hospital, there is no record of any trouble of this kind, which is somewhat remarkable, considering the dirty domestic surroundings of many of the out-patients.

With regard to secondary hæmorrhage, this may occur as late as fourteen days after operating, and as it is generally occasioned by the patient's disregard of the instructions as to absolute rest and removal of the dressings, whenever practicable he should remain in bed for three or four days, and under observation for at least a fortnight. Although sometimes the bleeding is alarming, ordinary measures are quite sufficient to stop the flow.

Results.—The swollen anterior end of the inferior turbinal soon shrinks, and free breathing is quickly established, with a corresponding amelioration of the symptoms. But are the results always so satisfactory.

Certain undesirable sequelæ have been advanced as likely to follow turbinotomy, viz. :—

1. Increase in size of the nasal cavities, anosmia, general atrophy of the mucous membranes of the nose, naso-pharynx and larynx, with the usual troubles attendant upon imperfect filtration of the atmosphere.

2. Opening up of the maxillary sinus, and subsequent suppuration.

3. Falling in of the nostrils and deformity.

Having personally investigated the subsequent history of over 200 cases, some of which were operated upon as far back as three years, none of these evils were found to have occurred. That atrophy of the mucous membranes may follow it would be unreasonable to deny, but it is only reasonable to assume that it occurred in patients who were subject to atrophic rhinitis, which was not recognized in its early stage, and for which milder measures would have sufficed. Permanent deformity due to collapse of the nostrils I firmly believe to be a phantom, for it not unfrequently happens that, instead of an unnaturally roomy nostril, a distinct reproduction of the mucous membrane follows, in the form of a ridge extending backwards from the anterior vestige of the turbinal crest which remained, and presented the appearance of a normal inferior turbinal. This was so remarkably shown in a case treated by Mr. Carmalt Jones that he removed a portion of the new turbinal two years after turbinotomy, for microscopic examination. I found that it consisted of normal mucous membrane complete in its details. In two instances this turbinal spur was sufficiently prominent to require reduction by cautery.

It is quite possible that the hiatus maxillaris may be enlarged, but that does not necessarily entail any serious results—at all events, I am not aware of its having occurred in the practice of my own hospital. It is easily avoided by confining the portion removed to the region which is diseased—a restriction which is not sufficiently observed.

In conclusion, it is not surprising that there should be some diversity of opinion regarding the pathology of a structure whose normal histology is the subject of so much dispute. It was, therefore, with the hope of obtaining some further histological evidence, both normal and morbid that I availed myself of the plentiful supply of material at my disposal. This investigation has, I venture to advance, established not only that visceral muscle fibres do exist in the walls of the venous sinuses, but that their morbid changes are responsible for the form of vascular hypertrophy which I have ventured to call Turbinal Varix.

SUPPURATION IN THE ANTRUM OF HIGHMORE TREATED BY MEANS OF KRAUSE'S TROCAR.¹

By DUNDAS GRANT, M.A., M.D., F.R.C.S.,

Surgeon to the Central London Throat and Ear Hospital, and to the West End
Hospital for Nervous Diseases.

IN the treatment of suppuration in the antrum of Highmore, it seems to me that our attention has been purposely too closely rivetted upon Cooper's method of irrigation through an opening in the alveolar process to the detriment of other methods, which, if not called for in all cases, have certainly their advantages in some, whether employed alone or in combination with the one we are most accustomed to employ. For this there are many reasons, some of great force, and others, in my opinion, somewhat over-rated. In favour of the adoption of *the alveolar method* we have the following facts :—

Firstly : The disease so often arises from an affection of the teeth, the removal of which forms the first step to the successful treatment of the disease, and this extraction leaves sometimes a ready-made passage into the antrum, but in any case one which can be completed with the greatest ease. Secondly : The opening is in the most dependent position, which makes it on general principles the most desirable one for drainage. The third fact is that a communication between the antrum and the mouth is absolutely uninjurious. Fourthly : The patient can practise irrigation through it without the intervention of the surgeon. This I consider the great and crowning advantage, possibly the only one. The process is, however, open at the same time in many cases to the following objections :—Firstly : it is not always an easy matter to hit off the antrum in making an opening through the alveolar process—there may be great thickness of bone, and the antrum may be a small one, and the edge of the alveolar process projects beyond it, and furthermore, if there is a considerable dehiscence of the bone on the outer surface of the socket for the teeth, a condition which we must all have seen on the skull. The unsuccessful puncture may consequently cause great pain, and the subsequent syringing may result in the extravasation of liquid into the cellular tissue. Secondly : in irrigation the alveolar opening is used as an aperture of entrance for the fluid instead of one of exit, for which its dependent position so well adapts it, and in the irrigation the tip of the syringe is higher than the floor of the cavity, in which there are often depressions that are not exposed to the direct impact of the fluids from the syringe. Thirdly : in cases where the disease is unconnected with the teeth and no carious tooth is present, the whole set being complete, it involves the removal of a useful and beautiful structure, to which the patient may very properly

¹ Read at the Meeting of the British Laryngological and Rhinological Association, October 12th, 1894.

object. Fourthly : the results of treatment, though brilliant to a degree, when we consider the neglect with which such cases were formerly treated, are very often only partially successful as far as cure is concerned, in spite of very prolonged practice.

Perforation through the inferior meatus has advantages which should encourage us to give the method a more favourable trial than we have hitherto been disposed to do in our exclusive appreciation of the alveolar operation. Its advantages are :—Firstly : that it confines the outflow of discharge to the nose, not thereby involving any communication with the mouth. Secondly : it is easily performed under local anæsthesia by means of cocaine or the short general anæsthesia induced by nitrous oxide. Thirdly : it is easily used by the surgeon for irrigation by Krause's instrument. Fourthly : it does not involve the removal of a healthy tooth ; and lastly : it greatly expedites the recovery.

The objections to it, however, must not be left out of account, and they are :—Firstly : that it is not at the most dependent part, though in point of fact it is extremely near it. Secondly : its performance requires a certain skill on the part of the operator, whereas the alveolar opening can be performed, if necessary, by any competent dental surgeon. Thirdly : it requires the aid of the surgeon each time irrigation has to be practised ; and fourthly : the opening tends to close with considerable rapidity.

Now, I hold that the dependence of the opening is, as I have already said, of little moment ; that with a suitable instrument, such as I show you, the operation is not a difficult one, and, if the access to the inferior meatus is not sufficiently free, it is a simple matter to remove the anterior portion of the inferior turbinated body either by means of a punch-forceps or an ordinary pair of bent scissors and a wire snare. The irrigation certainly is not likely to be practicable in the patient's own hands, but when once the opening is made there is no reason why the irrigation should not after the first few times be carried out by the patient's private medical attendant, one great advantage being, to my mind, that the number of irrigations required is very much less than by the alveolar method.

The mode of operation hardly calls for description. Krause's instrument, a slightly curved trocar, very similar to that used for the tapping of the bladder through the rectum, but somewhat shorter, and as sharp as possible, is introduced into the inferior meatus after thorough cocainization of both surfaces of the inferior turbinated body, which in any case is necessary for facility of access, whether general anæsthesia be induced or not. The point of the trocar is withdrawn within the canula, and pushed into the meatus a distance of about one and a quarter inches. The point is then projected, pushed upwards and backwards, and then very cautiously forced, with more or less of a crunching sound, through the outer wall of the meatus. The trocar is next withdrawn and the canula pushed inwards. It will be felt, if in the antrum, as it can hardly fail to be, to impinge against the posterior wall of that cavity. The syringe is then adapted to the outer orifice of the canula, and a warm solution of boracic acid is injected, and the contents are thus washed out through the natural

orifice. The canula may after this be removed. Next day the canula is reintroduced, but this again under cocaine, and this time by means of a blunt obturator in place of a trocar. This is then repeated at gradually-increasing intervals, and in suitable cases very gratifying results may be speedily obtained, although their ultimate value is a matter for further experience. It is not merely as an operation by itself that this proceeding is valuable, but it has a place as an adjunct to the alveolar operation, as in several cases where the progress was extremely and disappointingly slow I have seen a marvellous and rapid improvement as soon as this inferior meatal irrigation was added to that practised through the alveolus. In addition to being useful for the introduction of an irrigating fluid, it is convenient also for the insufflation of powders. The rapidity with which the opening closes is at present a considerable disadvantage, but the opening can be enlarged by means of a burr, worked either by hand or by means of a dental engine, and I am at present devising an instrument for enlarging this opening, to which I hope to draw your attention upon an early occasion.

The first case is that of a young man, under treatment at the Hospital for Nervous Disease on account of epileptic fits. When he was referred to me he had a continual stuffiness in the nose, with purulent discharge. This was most marked on the left side, and the discharge had an offensive odour, recognizable by the patient, and comparable to that of a dental abscess. He had several very bad teeth in the left side of the upper jaw. There was a quantity of creamy pus in the left middle meatus, and the middle and inferior turbinated bodies were sodden-looking. The presence of pus in the antrum was further suggested by the darkness on transillumination, and proved by exploratory irrigation by means of Lichtwitz's trocar, the use of which I brought before the notice of this Association. I made a perforation into the antrum by means of a dental drill, after the extraction of the first molar, and washed out the cavity by means of the ordinary antrum syringe. There was a free flow through the nostril, but the introduction of the tube caused considerable pain, and some fulness of the cheek. I therefore abandoned the method after one or two occasions, no very obvious improvement having taken place. Thinking this a fair case for a trial of the intra-nasal method, I cocaine the inferior meatus, and with very little difficulty pushed the point of Krause's trocar into the antrum. It is now a little over a month since this was done. The opening in the alveolus rapidly closed, and the cavity has been washed out with weak sanitas or boric lotion three times a week with such excellent effect that now there is no discharge whatever from the nose, the passage is free, and the patient enjoys a degree of comfort to which he has long been a stranger.

The next is the patient who has been before the notice of the Association on two occasions as an instance of frontal sinusitis. It may be remembered by some of the Fellows present that on his first coming under my care I was able to assure myself, by means of transillumination and of exploratory irrigation, that the maxillary antrum was free from pus, and that I operated on the frontal sinus by means of an external opening. In spite of the comparatively favourable course of the case as regards the

frontal sinus, there continued to be a greater nasal discharge than the disease of that cavity would account for. I did not think of the possible involvement of the antrum till some time after, when, on transillumination and irrigation, I found ample evidence of pus in that chamber. As this was obviously set up by extension from the frontal sinus, and was therefore of nasal and not of dental origin, I determined to submit it to intra-nasal treatment only, in spite of the fact that there were hiatuses in the continuity of the dental arch. I therefore introduced Krause's trocar, and used the same simple injections as in the other case, thrice, and occasionally only twice a week, with the result that there is now absolutely no purulent discharge from the nose. In order to facilitate the introduction of the trocar I removed the anterior extremity of the inferior turbinated body by means of a punch-forceps, similar to the instrument I now show you, the blades of which are modelled on those of Hartmann's conchotome.

In the case of a lady on whom I operated by Cooper's method several months ago, she employed all sorts of solutions with great assiduity with considerable benefit, yet no lasting improvement; but when I made use of Krause's trocar and canula a most striking diminution in the amount of discharge at once took place, and the patient, though not yet cured, is progressing much more rapidly than before. In her case I ablated the anterior extremity of the inferior turbinal by means of scissors and snare.

In another case, that of a gentleman with ethmoidal disease in addition to empyema of the antrum, similar benefit ensued after the use of Krause's trocar in addition to the alveolar opening. He had to use his syringe night and morning, or even oftener, and with only partial relief to the stuffiness, but since the adoption of Krause's method he is quite comfortable if syringed every three days, the succulent condition of the middle and inferior turbinated bodies having notably diminished.

I am conscious that this communication is somewhat premature, and that subsequent experience will show that there is only a limited field of applicability for the intra-nasal method—still I maintain that there is a field, and I trust we shall arrive at the data which will enable us to mark out the limitations.

I should recommend its use (1) in all cases arising from intra-nasal causes; (2) in all cases in which there is no abscess or disease of teeth. Further, I should give it a trial as an adjunct to the alveolar method of treatment when this gives unsatisfactory results, before resorting to the ultimate, though eminently successful, operation by means of a large opening on the outer wall of the antrum.

THE BRITISH LARYNGOLOGICAL AND RHINOLOGICAL ASSOCIATION.

Nineteenth General Meeting, held October 12th, 1894.

President—Dr. J. MACINTYRE, Glasgow, *Chairman*.

Twenty-six Fellows and Visitors were present.

The minutes of the previous meeting were read and confirmed.

ELECTION OF OFFICERS.

Drs. WAGGETT and HUTCHISON, *Scrutineers*.

The result of the Ballot was announced as follows:—

President.—Dr. W. McNEILL WHISTLER (London).

Vice-Presidents.

Dr. ED. WOAKES.

Dr. RICHD. A. HAYES (Dublin).

Mr. MAYO COLLIER.

Council.

Metropolitan	{	Dr. ED. LAW. Dr. DUNDAS GRANT. Dr. FARQUHAR MATHIESON. Dr. N. WOLFENBÖEN. Dr. J. MACINTYRE (<i>ex officio</i>).
Extra-Metropolitan	{	Dr. BARCLAY BARON (Bristol). Mr. F. MARSH (Birmingham).

Hon. Sec.—Dr. HEMINGTON PEGLER.

The following gentlemen were elected Fellows of the Association:—

RICHARD LAKE, F.R.C.S. (London).

JAMES WILSON, M.D. (Liverpool).

Dr. MACINTYRE gave notice of motion that he should propose at the next meeting: "That an additional Secretary be elected."

Dr. WHISTLER asked permission to withhold his former motion until the next meeting: "That the office of Treasurer be separated from that of Secretary." This was unanimously agreed to.

VOTE OF THANKS.

Mr. LENNOX BROWNE asked permission before Dr. Macintyre left the chair to put to the meeting a formal vote of thanks to the retiring President, whose special efforts and exceeding assiduity merited a special vote expressive of the gratitude of the Association. He referred to the fact that during his tenure of office Dr. Macintyre had made the journey

rom Glasgow to London no less than eight times, involving railway travelling over some eight thousand miles. Although Dr. Macintyre had as an object for emulation the example of the previous President, Dr. Sandford, of Cork, he thought such devotion ought not to be allowed to pass without some record of their appreciation.

Dr. WHISTLER seconded the motion, observing that Dr. Macintyre's work spoke for itself, and the resolution was passed by acclamation.

Dr. MACINTYRE thanked the society in suitable terms for the appreciation they had shown of his efforts on behalf of the society. Any little trouble he might have been put to in attending the meetings of the society had, he said, been more than repaid by coming into contact with the gentlemen whom it had been his privilege to meet at the meetings. He could safely say that he had throughout done his best to further the interests of the Association, and his interest in its welfare would not cease on leaving the presidential chair.

He then called upon Dr. McNeill Whistler, the incoming President, to take the chair.

DR. WHISTLER'S ADDRESS.

Gentlemen,—The fulness of my appreciation of the great honour you have conferred on me, in electing me to be your President for the ensuing year, I cannot find words adequately to express.

The brilliant success that has marked the presidential terms of those who have preceded me in office confronts me at once with a grave difficulty, and fills me with no small amount of anxious apprehension lest I may fail to sustain, at least in some measure, the high standard achieved by them.

This is the one cloud that for the moment overshadows me. Its silver lining is the trust I place in the aid I shall receive from you in the fulfilment of the duties I have undertaken, and the hope I cling to that you will be always kindly indulgent to me in my efforts.

No trust could be confided to my keeping whose interests I would more zealously seek to promote, for it is the greatest satisfaction to me that this society—the founding of which it was my privilege to argue for at the Dublin meeting of the British Medical Association, and the establishment of which it was my great pleasure to work for, in conjunction with Dr. Hayes, Mr. Stoker, Mr. Lennox Browne, Dr. Macintyre, Dr. Hunter Mackenzie, Dr. Woakes, Dr. Dundas Grant, and others, should have reached that front rank which the early founders ventured to hope might one day crown their efforts. It has passed through storms—it has sailed safely into smooth seas—and no one is more glad than I am that all this is now relegated to past history. Far be it from me to dwell upon memories that it is the delight of all of us not to cherish. I only wish to tell you, now that the occasion is afforded me, how great a pleasure it has been to me to meet and work with all here again.

More I cannot say, excepting to offer you my assurance that during my term of office it shall be my aim to follow the bright examples set me, and that I will shirk no trouble or responsibility, nor spare myself any labour that can conduce to the continued welfare of this Association.

MEMORIAL TO THE LOCAL GOVERNMENT BOARD.

Mr. LENNOX BROWNE recalled to the recollection of the Fellows the fact that a special committee had been appointed to consider the question arising on Dr. Norris Wolfenden's paper, as to the better detection of infectious sore throats with a view to prompt isolation. The draft of the memorial had been submitted to the president, vice-presidents, ex-presidents and members of the Council for their signature, together with their suggestions. The memorial had since been formally presented to Mr. Fowler, President of the Local Government Board, to Sir Walter Foster, and to Dr. Thorne Thorne. He had also caused to be sent, unofficially, a copy to Sir Edwin Galsworthy, the chairman of the Metropolitan Asylums Board.

The Secretary then read letters, acknowledging receipt of the memorial, which was ordered to be printed in the *Transactions*.

On the suggestion of Dr. Macintyre and Dr. Sandford, it was resolved that copies of the memorial be also sent to the Presidents of the Irish and Scottish Local Government Boards.

"THE BRITISH LARYNGOLOGICAL AND RHINOLOGICAL ASSOCIATION.

"To the Right Honourable HENRY HARTLEY FOWLER, M.P.,

"President of the Local Government Board.

"Sir,—At a recent meeting of the British Laryngological and Rhinological Association, composed of physicians and surgeons from all parts of the empire, especially engaged in the study and treatment of diseases of the throat, a paper was read by Dr. Norris Wolfenden, emphasizing the importance of the early recognition of the acute infective diseases of the tonsils, and the pressing necessity for the isolation of patients suffering from these disorders.

"As a result of the discussion which followed, a resolution was proposed and carried that a representation should be made to your Honourable Board of the necessity for greater facility being afforded for bacteriological examination in these cases by the establishment of stations for the purpose, such as is done in the city of New York, the details of which will doubtless be familiar to you.

"The Association does not for a moment presume to even suggest the means by which these facilities could be granted to medical practitioners, but would only point out that, while it is evident that the average family attendant, who is the first to see these cases during the initial and therefore the most important epoch, is not in possession of either the requisite special knowledge or the facilities for pursuing such investigations, it must also be at once apparent that an accurate diagnosis at the commencement of these cases is of vital importance, not only to the individual attacked, but also for the protection of the community in general.

"Moreover, it need hardly be pointed out that many diseases in this region, which may be regarded as infectious, are not limited to diphtheria, though many of them, clinically, so closely resemble this disorder as to be only capable of differentiation by bacteriological methods.

"No true progress can be made in the proper classification of their relative virulence except by scientific research, and only by such a system can efficient notification be effected with a corresponding relief from the onerous responsibility which now presses on the medical profession in cases of doubtful diagnosis.

"It is confidently to be hoped that the early detection of such disorders, by

the means indicated, would eventually lead to the diminution of diphtheria and allied disorders, now so alarmingly on the increase.

"It may, therefore, well be brought within the scope and duties of the Medical Officers of Health and other officials under the control of your Department.

"The Association venture to think that on all these grounds, as well as on many others which they forbear from pressing, no apology is needed for bringing this matter under your consideration.

"We are, Sir,

"With high respect,

"Your most obedient Servants,

President—JOHN MACINTYRE, M.B., Surgeon for Diseases of Throat and Nose, Glasgow Royal Infirmary.

Vice-Presidents—W. MCNEILL WHISTLER, M.D., Physician to London Throat Hospital.

R. NORRIS WOLFENDEN, M.D., late Physician to Throat Hospital, Golden Square.

M. P. MAYO COLLIER, M.S. and M.B., late Surgeon, Throat and Ear Department, North-West London Hospital.

Ex-Presidents—PHILIP C. SMYLY, M.D., late President Royal College of Surgeons of Ireland.

LENNOX BROWNE, F.R.C.S., Senior Surgeon, Central London Throat, Nose, and Ear Hospital.

ARTHUR W. SANDFORD, M.D., Surgeon and Lecturer in Ophthalmology and Otology, Queen's College, Cork.

Members of Council—EDWARD LAW, M.D., Surgeon to London Throat Hospital.

EDWARD WOAKES, M.D., Senior Aural Surgeon and Lecturer, London Hospital.

WILLIAM MILLIGAN, M.D., Aural Surgeon and Lecturer, Owens College, Manchester.

RICHARD A. HAYES, M.D., Physician for Diseases of Throat, etc., Infirmary, Dublin.

V. H. WYATT WINGRAVE, Honorary Secretary, Assist.-Surgeon, Central London Throat, Nose, and Ear Hospital, 7, Taviton Street, Gordon Square, W.C."

Mr. LENNOX BROWNE showed a little girl, the subject of a curious *Malformation of the Pharynx*.

M. D., aged six. Admitted to the Central London Throat, Nose and Ear Hospital, September 17th, 1894.

The little girl is the eighth child of ten children, all of whom are alive and well, with the exception of the first, who died in convulsions, aged one year and nine months.

The family history on both sides is good, and there is no reason to suspect any syphilitic dyscrasia in either of the parents. The little patient had influenza three years ago, and scarlatina a year later. She has never had diphtheria or other throat trouble, nor is there any history of any inflammatory process in the larynx or pharynx.

The mother states that from her birth the child has always had difficulty in breathing, the intensity of which has, however, greatly varied

from time to time. Of late there has been stridor, and sometimes dyspnœa, even in the daytime and at rest, but no actual convulsion or cyanosis. The child sleeps with the mouth wide open, and snores loudly.

On examination a curious malformation is observed. It consists of a fleshy septum, which is attached above and in front to the soft palate, laterally to the mucous membrane covering the pterygoid processes, and posteriorly to the pharyngeal wall.

There is a more or less circular opening in the middle line, partially obscured by the uvula, in front of it. When the fauces are irritated this opening almost entirely closes, the free edges of the septum belling up so as to give the appearance of closure of the isthmus by approximation of the posterior pillars, which, in fact, are not otherwise represented.

The finger introduced through this opening passes directly into the post-nasal space, which on the patient's first visit was found to be blocked by a considerable overgrowth of the pharyngeal tonsil. Below, the finger detects a pocket or pouch between the membranous septum and the posterior pharyngeal wall. There is no interference either with the passage of the larynx or with that of the pharynx below its middle third.

The faucial tonsils are somewhat enlarged.

The general appearance of the child is that of a mouth-breather; the nasal bones are flattened, and the complexion is pallid.

On September 24th, with curette and finger-nail, I removed a considerable mass of adenoid growth from the naso-pharynx through the aperture already described.

Since then she rests more naturally and snores less, although she still continues to sleep with her mouth open, and on the whole the child seems to have improved in her general health.

It is proposed to remove the fleshy membrane, to again curette the naso-pharynx, and, if necessary, to excise the enlarged faucial tonsils.

Remarks.—Congenital malformations of the pharynx, due to developmental abnormalities in the nasal or oral portions, are exceedingly rare, and in the preparation of a recent article I was unable to find one in the museum of the Royal College of Surgeons. This case is, therefore, of exceptional and possibly of unique interest.

Mr. MAYO COLLIER said that, during his somewhat extended period of office as demonstrator of anatomy at the London Hospital, he had opportunities of examining the muscles of the pharynx and larynx in a large number of cases. He maintained that the levator palati was at all times a continuous muscle from side to side, the fibres having no interval or point of insertion in the midline. In many cases the palato-pharyngeus extended nearly to the midline, its fibres arching inwards to their insertion as well as downwards to the posterior border of the thyroid cartilage. He had likewise found in very many cases a similar peculiar distribution of the palato-glossus muscle. The palato-glossus in many instances hid the tonsil, and, curving in, ran on to the tongue, and met its fellow of the opposite side at the midline. The fauces in such cases were heart-shaped and constricted. The disposition of these muscles was, he said, evidently to act as constrictors, and he looked upon Mr. Lennox Browne's case as an abnormal extension of a normal muscle of the pharynx.

Dr. DUNDAS GRANT observed that it had so far not been decided that the abnormality was congenital, and not the result of cicatricial adhesions of the posterior pillars of the fauces. He pointed out that there was a certain amount of air space beneath the transverse band, through which one could see the epiglottis. It occurred to him that possibly it might be due to adhesions of the posterior pillars of the fauces, by cicatricial contraction drawing them together with adhesion to the posterior wall of the pharynx. He admitted that it must be a very difficult question to decide, and he doubted whether even prolonged study of this particular case would clear up the question. It could only be compared with specimens of similar malformations as they were grouped.

The PRESIDENT thought the case a most interesting one. To give a definite opinion as to its exact nature was very difficult. It seemed to him that the appearances very much resembled those arising from cicatricial contraction. He raised the question whether it might not be the result of congenital syphilis, or possibly tubercle. He had not understood, and would like to know, whether the child had been under treatment for any acute throat symptoms, or any other specific ailment, before Mr. Browne had seen it. He referred to a case which he had seen some years ago (due to congenital syphilis), in which the pharyngeal stenosis was so intense that it was impossible to get any view of the larynx or find any entrance into the lower pharynx. The urgent and persistent dyspnoea necessitated tracheotomy, but the specially interesting feature was that there was no appreciable difficulty in swallowing during the long period in which the patient remained under observation.

Mr. WYATT WINGRAVE said that the septum was apparently attached laterally to the pterygo-palatine fold, and, sloping downwards and backwards, became merged with the posterior wall of the pharynx, so shutting off the naso-pharynx from the bucco-pharyngeal cavity. Just behind the uvula was an aperture, through which the finger could pass into a well-formed naso-pharynx. He suggested its probable origin as vertigial, in connection with the primitive velum, which separated the buccal involution from the fore gut.

Mr. MAYO COLLIER said he did not understand how it could migrate from the anterior to the posterior wall.

Mr. LENNOX BROWNE, in reply, said he of course expected that syphilis would be suggested as an etiological factor, but he thought this hypothesis had been pretty well disposed of by the family and individual history. No constitutional treatment had been prescribed because, in fact, there had not been the slightest constitutional indication.

Mr. LENNOX BROWNE. *A Case of Nasal Synostosis under Treatment.*

My object in relating a case of nasal synostosis is, firstly, to draw attention to the most common cause as one to be by care avoided, and secondly, to a point or two in treatment.

I think it will be generally admitted that almost every case of a bony bridge between the septum and a turbinal is an untoward result of cauterization, and whether it be that the exostosis begins from an irritated periosteum or perichondrium is unimportant; the lesson to be

learnt is that the cases in which the septum ought ever to be intentionally touched at all with a caustic are exceedingly rare and exceptional, and that every precaution should be observed against its accidental occurrence.

The case under consideration is that of a young gentleman, aged nineteen, of Jewish faith, the third son in a family of seven, who came under my care on September 19th of the present year.

Briefly the history was as follows:—So far as he could remember there had been no injury to the nose, but in December last he was treated in Berlin for polypus in the left nostril. After removal of polypi the nostril was cauterized on several occasions, and some adenoid growths were removed from the naso-pharynx. It is only to be added that he was told by his German physician to have skilled treatment on his return to London, and was warned that if he neglected to do so he might be liable to have an adhesion between the walls of the nostril. As a matter of fact, he did not follow this advice for nearly nine months.

When I saw him I found the left nostril almost entirely closed, by a large horizontal spur growing from the lower part of the left side of the septum nasi, forming a bony bridge across the middle third of the inferior meatus, and extending far back. The faucial tonsils were both hypertrophied, and the lacunæ inflamed; the uvula pendulous and relaxed; and on digital examination of the naso-pharynx I found some recurrence of the hypertrophy of the pharyngeal tonsil.

On the following day, the patient being anæsthetized with nitrous oxide gas, I removed the enlarged tonsils, shortened the uvula, and cleared the vault of the pharynx of all remnant of adenoid growths. Some measure of relief of his symptoms attended this procedure.

On October 2nd, under the same anæsthetic, supplemented by a small quantity of ether, I, by means of the saw, first separated the septal outgrowth from the left turbinal, and then removed the "bridge," which was formed by a large spur, partly bony and partly cartilaginous, which, denuded of its soft tissues, is shown as a specimen. There was free hæmorrhage at the time, but this ceased on plugging with cotton wool soaked in a fifteen per cent. solution of cocaine in hazeline. The two walls of the nostril were kept apart by a plug of wool, dusted over with aristol.

I may remark, with regard to plugs, that we may pass a considerable quantity of wool or lint into the nostril without passing it very far along the floor of the meatus, and I therefore now adopt the plan of winding the wool on a piece of malleable wire to produce the necessary stiffness.

The later treatment illustrates the second point of interest, namely, the extreme difficulty in preventing the reformation of these bridges; and, acting on a suggestion of Dr. Holbrook Curtis, I have been employing, first, thin layers, and later, thin tubes of tin or lead sheeting, which appear to have the effect of keeping down the granulations better than bougies or canule of soft or hard rubber or of celluloid. The case is by no means yet cured, but even thus early I have reported it, with the hope of eliciting some expression of opinion on the points I have taken up—first, the question of cauterizing the septum, and secondly, how best to

permanently overcome the disposition to synostosis when once it has taken place.

There is just one other point of practical interest. As I have often said before, it is very difficult in looking along the tunnel of the nostril, or down the larynx, to estimate the actual thickness of any obstruction seen on end, and it frequently happens that from ignorance on this point a spur or bridge is incompletely removed. In the case of a nasal bridge this difficulty is overcome by employment of a hooked probe, which, passed along the floor of the nostril, can easily determine the thickness of tissue to be cut through.

Dr. DUNDAS GRANT said there was no doubt as to the seriousness to the patient of the presence of union between the septum and the turbinated bodies. In order to prevent such adhesions it was important to reduce any enlargement of the turbinated body before proceeding to operate upon the septum. He did not mean by removing the turbinated body, but by pinning down the mucous membrane. In the disturbance of equilibrium which took place in the nose after an operation, the turgescence of the turbinated bones was likely to be exaggerated, and there was a tendency to a greater amount of swelling than would have been the case had greater attention been paid to it beforehand. He also insisted on the necessity for drying the cavity before introducing the cautery, as otherwise the hot metal would give rise to a scalding vapour which would injure the neighbouring mucous membrane, and so pave the way to the formation of adhesions. On one occasion he had broken the adhesions, but they had reformed, so he shaved away the projection on the septum and removed the projecting piece of the turbinated bone with a knife. He admitted that this seemed rather much to do unless they were driven to it, but he believed there were cases in which no other plan would enable them to deal with it. It was very often impossible to see clearly what one was doing, and the probe must often be used to make out the limits and dimensions of any spur, etc., which it might be necessary to remove.

Mr. LENNOX BROWNE, in reply, said he wished to draw attention to the great desirability in cauterizing turbinals of protecting the septum. Every year he met with cases in which damage had been inflicted in this way. He had never seen a bridge formed simply as the result of the removal of a spur. His rule of practice was not to interfere in the case of a spur unless it *touched* the turbinal—that being the main indication for surgical procedure—and he always endeavoured to effect a reduction of the soft tissues of a large turbinal before operating on any septal prominence of cartilage or bone.

Mr. MAYO COLLIER. I. *Abscess of Frontal Sinus.*

This case is one of abscess of the frontal sinus followed by polypoid degeneration of the mucous membrane as exhibited to you at our last meeting. I have trephined his frontal sinus and removed the polypi, and I now present him to you cured, and very much improved, both mentally and physically. The method I adopted in draining the frontal sinus has the recommendation of novelty, simplicity, and efficiency. It consists of

simply passing a piece of tubing into the nose, so as to fairly fill the infundibulum. When ablutions of the sinus are required, simply stretching the tubing will permit fluid to pass from the sinus into the nose. (Mr. Collier showed a skull with the tubing passed from the frontal sinus into the nose, and demonstrated the method of drainage.)

II. Case of Severe Chronic Facial Neuralgia due to Necrosis of Middle Turbinate Bone.

My next case is one of even greater interest than the last, because up to this these cases have rested entirely in the hands of the specialists on nervous diseases, and I make bold to say, as in this and many other instances, the cause of their troubles has not been recognized, and extensive and serious operations on the fifth nerve have been performed, when all the time the origin of the nerve affection was in the nose.

Only within the last few months two such cases have come under my observation, introduced to my notice by my colleagues on the chance of my finding disease in the nasal cavities.

The man before you is a relieving officer in the East End aged about fifty. He has had intolerable facial neuralgia in the infra-orbital region, lips, tongue, and mouth, now for some five years, rendering life almost insupportable. Medicines had entirely failed to give relief. As you will see, all his teeth have been removed in the hope of affording relief. Change of air, electricity, and every mode of treatment has only ended in disappointment. The case was sent to me, and admitted into hospital. After a careful examination of the parts nothing in the mouth, teeth, antrum, ear, or neck could be discovered as likely to account for his troubles. An examination of the nose showed marked nasal obstruction on the same side, and a probe revealed necrosis, with several polypi on the middle turbinated bone. These were at once removed with the cold snare, and I present the case to you as cured, and entirely relieved of his distressing condition.

III. Headache with Diseased Middle Turbinal.

The next case is one of still, if possible, greater interest, because many of these cases in the hands of the general physician remain entirely unrelieved, and are doomed to a life embittered by chronic headache. This poor woman, aged sixty-four, was sent me by Dr. H. Campbell, the author of an excellent work on headache. Briefly, she has never been free from headache on the left side for five years, and suffers severe exacerbation at times. She has complained of pain in the throat and post-nasal space also during the time, and for this she has been treated in the Golden Square Hospital, the Central London Hospital, and other similar institutions, but without relief. After a careful general examination an inspection of the nose revealed extensive disease of the middle turbinated bone on the left side. This was at once removed under cocaine, and I have brought the specimen, a unique one, for your inspection. The operation was followed by almost immediate relief, and I present the case to you as another illustration of what nasal surgery can do.

Dr. DUNDAS GRANT observed that the subject of headache in connection with nasal disease was one that would come more and more into prominence. He called attention to the original work by Bresgen on the subject of headache associated with disease of the nose. That gentleman's cases included not only such cases as the author's, but also in association with deformities and diseases of the sinuses. He admitted that one's attention having been devoted to any particular point, too much stress might be laid on any particular symptom, but he himself had met with many cases of headache apparently due to swelling of the turbinated bone. He pointed out that the complaint of pain in the nose due to this cause was tolerably common. Some of the most illustrative cases were those shown at the meeting of the British Medical Association by Dr. Hill. Dr. Grant had cured headaches by reducing the swelling by means of the galvanic cautery, or with the snare, or else by means of a convenient form of forceps, analogous to the conchotome devised by Hartmann. He had devised a simpler instrument for the purpose. He had also had some cases of headache associated with disease of the sphenoidal sinus. He doubted whether all rhinologists had a clear idea of the delimitations of this cavity. It was long before he himself found how near to touch the sphenoidal sinus was. On introducing the probe one often felt what seemed like bare bone. He had syringed out the sphenoidal sinus in several such cases, and had been able to relieve them, and recalled that he had shown two cases of sphenoidal disease at the last meeting, in which headache was a prominent symptom.

Dr. CAGNEY said it was impossible to exaggerate the importance of the bearing of rhinology on medicine. It was more by chance than anything else that he had been enabled to see the case in question, of which he proposed to publish the notes in full elsewhere. A patient, a woman, came to him saying she had suffered from neuralgia for twelve years, and wanted an operation performed. He had warned the patient that the operation was difficult, and possibly unsatisfactory, but she insisted, so he took her to see Mr. Horsley. He used electricity to alleviate the pain, but it recurred. Mr. Collier happened to be visiting him, and his attention was called to the case. He examined her and found dead bone, of which he removed a considerable quantity, and the patient was at present quite well, although before the operation she had suffered for twelve years from almost intolerable pain.

He took great interest also in the association of headache with nasal disease, and related the case of a lady whom he had seen who suffered from intense headache. She had all the appearances of a person who breathed through the mouth, so he examined the nose. There was no passage of air through that organ, so he sent her to a nasal specialist. He elicited the fact that an operation of some kind had been performed years before by the patient's brother, a surgeon in Hanover, but the headache had returned. He had inserted a little silver instrument used in dilating the alæ of the nose, and as long as she wore this she never again suffered from headache. He thought it was something more than a coincidence, and he thought these cases could be cured by proper treatment directed to the nasal condition.

Dr. DUNDAS GRANT read a paper on *Cases of Suppuration of the Antrum of Highmore, treated by means of Krause's Trocar.*

In this paper, which is reported in full on pages 798 to 801, Dr. Grant advocated in certain cases the adoption of the method of treatment of antral suppuration by the use of Krause's trocar, introduced through the inferior meatus of the nose. He had tried it with a view to meeting the requirements of those patients who had a complete set of sound teeth. In two old-standing cases, which he showed at the meeting, complete recovery took place.

Mr. JOHN BARK (Liverpool) said Dr. Grant had not mentioned in the treatment of the antrum what he himself considered the most surgical method, viz., puncture through the canine fossa. This enabled the patient to flush out the cavity himself, and in cases where the suppuration was due to polypi or granulations, the opening could be made much larger, and thus the cavity might be curetted. In only two cases had he endeavoured to treat by perforation through the inferior meatus, a procedure which presented the disadvantages of giving rise to an irritating discharge from the nose, which was apt to set up disagreeable erythema of the upper lip, so that he had to open the canine fossa after all.

Dr. SCANES SPICER said he had been in the habit of opening the abscess through the canine fossa, combined with the plan suggested by Dr. Grant. At present he always commenced at once with this combined plan, which he had employed in some twenty cases. He thought it presented considerable advantages over all other plans, and the patients recovered in a month or six weeks. As a matter of fact he had never succeeded in thoroughly curing a case by any other method. He admitted that the operation knocked the patient up for a week or two with traumatic fever, but from that time they invariably entered on the path of recovery. He looked upon curetting of the antrum and removal of the thick granulations as very important. In most of his cases he had found polypi. He did not see how these could be got out unless a large opening were made through which to curette.

Dr. HILL observed that if there were any polypoid masses it was evident that no amount of syringing could cure the case, though the treatment might afford some relief. He said that in the next case of the kind he would certainly try the radical operation in the first instance. In the last three cases at St. Mary's Hospital, Mr. Lane had made an opening, and they had all done well.

Dr. MILLIGAN urged that the alveolar method of opening and draining the maxillary antrum had been somewhat unjustly passed over. He had treated a considerable number of cases by this method, and in many had attained a satisfactory result. They had perhaps not been cases of the most inveterate form, but had still been fairly typical. He desired to show a small apparatus by means of which the patient could carry out the irrigation himself. The instrument consisted of a rectangular silver canula, carrying a movable platform, upon which rested a thick india-rubber disc. This was introduced into the antral cavity, and irrigation effected upon the *siphon* principle. The patient could in this way easily

irrigate the cavity. He had tried other methods of opening the antrum, but thought that in those cases where the antral suppuration was secondary to dental disease, that of the alveolar method should first of all be tried, as being the simpler and less serious manipulation.

Dr. GRANT, in reply, said that there could be no question that something more than the alveolar operation was required, but he hesitated to admit that the combined operation should be performed forthwith. They must all have seen cases in which the nasal treatment had alone sufficed to effect a cure. If one could tell beforehand that there was a polypus, he would agree to the proposition, but this they could not do. If these cases relapsed, he promised to bring them once again before the society. A great deal of the success attending Dr. Milligan's operation was due to the size of the opening. When the disease arose from teeth, he was sure that that was the proper method to pursue. If this would necessitate the removal of a healthy tooth, then the intra-nasal method should be given a trial.

Mr. BARK (Liverpool). *Case of Nasal Calculus.*

Jane D., aged twenty-six, presented herself at the throat department of the Liverpool Stanley Hospital on the 17th November, 1893. She complained of blockage of the right nostril, purulent discharge, frontal headache, and epiphora.

These symptoms started about three years before, and had gradually become more troublesome and distressing. On opening up the right nostril by the insertion of cocaine plugs and examining by anterior rhinoscopy, a lump of jelly-like material was seen, with white calcareous points shining through. This mass was situated on the floor of the nose, between the inferior turbinated bone and the septum. By means of the probe a distinct grating could be felt and the presence of rhinolith diagnosed. It was quite immovable, being evidently firmly imbedded in granulations.

With the patient under chloroform, the stone was with difficulty released from its bed by means of strong forceps. There was rather profuse hæmorrhage, necessitating the plugging of the right nasal cavity with iodoform gauze for twenty-four hours. On examination, a few days after the removal of the plug, the floor was seen covered by large granulations, in which the stone had been firmly fixed. These were removed by the cold snare and galvano-cautery. After the operation, the nostrils were sprayed with an alkaline antiseptic fluid, and the right side insufflated with aristol.

The patient was seen by me about two months ago. All unpleasant symptoms had disappeared, and the affected side of the nose was quite clear.

The calculus is evidently of the soft or phosphatic variety usually found in the nose. According to Schech ("Diseases of the Mouth, Throat, and Nose," 1886, p. 258), those analyzed were composed chiefly of phosphate and carbonate of lime, with organic matter and a trace of iron.

The stone is of so soft a nature that I feared to have a section made until I had shown it at this society; so that the question as to the presence of a nucleus or its character must be left until later on.

Mr. WINGRAVE showed a rhinolith which he had removed from a nostril some months since. It was now in pieces, having been broken up in searching for a nucleus, but none was found. It was removed from a girl of sixteen, and was imbedded between the middle concha and the bulla ethmoidalis.

Dr. MILLIGAN. *Case of Sero-Mucous Cyst of the anterior part of the Left Nasal Fossa.*

The patient, a female, aged forty-one, had noticed the existence of a rounded swelling immediately under the ala of the left nostril for the past few years. At no time had there been any pain. The only symptoms complained of were partial obstruction in the left nasal passage, and the discomfort incident to the presence of a certain amount of facial deformity. She was unable to account for the presence of this swelling and was unaware of any injury to the part at any time. Her previous general health had not been good. Both mammae had been removed for schirrhous cancer early in 1892.

Upon examination, a swelling of about the size of a walnut was found under cover of the left ala nasi, projecting upwards into the vestibule and reaching nearly to the anterior extremity of the inferior turbinated body. The tumour was painless upon manipulation, easily movable, in no place adherent to the bone, and was evidently tense from the presence of fluid. Of late it had increased somewhat in size. The patient had previously had the cyst punctured when under treatment at another hospital, but rapid refilling had taken place. It was accordingly decided to expose the cyst and dissect it out. Accordingly an incision one inch long was made under chloroform at the junction of the cheek and gum of the left side, and the parts carefully dissected up. In this way the cyst was readily exposed. Unfortunately, during the course of the dissection the wall was ruptured and the contents, consisting of muco-purulent fluid, escaped. The cyst wall was dissected away as carefully as possible, the parts well scraped with a small Volkmann's spoon, and the cavity packed with iodoform gauze.

During the first forty-eight hours considerable inflammatory œdema resulted, and the temperature rose to 100° F. This shortly subsided, and in a few days the patient expressed herself as feeling well.

Such cysts are of rare occurrence, and a search through the literature of the subject shows that only a few cases have been recorded. Chatellier (*JOURNAL OF LARYNGOLOGY*, April, 1892) records two such cases, and considers that they are caused at times from obstruction to a gland duct, that they are in fact retention cysts. Zuckerkindl ("*Normale und Patholog. Anatomie des Nasenhöhle*," 1882, vol. i.) records the case of a cyst the size of a walnut occurring under the mucous membrane at the anterior extremity of the left nasal passage, which after puncturing was found to contain a honey-like fluid. McBride ("*Diseases of the Nose, Throat, and Ear*") also records two cases. Knapp ("*Archiv. of Otolog.*," vol. xxiii. 1 and 2) records a case as occurring in a woman aged forty-seven. A soft fluctuating tumour with resistant walls could be felt under the skin adjacent to the base of the wing, and in the vestibule of the left

nasal passage. It was connected with the periosteum and contained a clear mucoid fluid.

Regarding the methods of treatment, evacuation of the contents either by incision or by aspiration does not appear to afford much satisfaction. Recurrence is almost invariable. The application of caustics or of the electro-cautery to the interior of the sac, although somewhat tedious, has yielded satisfactory results.

Extirpation of the whole cyst seems, however, to bring about complete cure. This may be accomplished either by Rouge's method of reflecting the upper lip and so exposing the cyst wall, which is then carefully dissected out, or by Diffenbach's plan of making an incision along the base of the ala nasi, exposing the cyst and dissecting it out. It is important that the whole of the wall should be removed, otherwise re-filling and recurrence is prone to take place.

Dr. SCANES SPICER said he had seen a very similar case. He had cut out a piece of the wall and plugged it with silk. It got well in two or three days, but he confessed that the etiology of these cysts was very obscure.

Mr. BARK said he had done Rouge's operation on two or three occasions, and he found he could get very little more room than through the ordinary nasal channel, while on the other hand it was a bloody and unpleasant operation.

Dr. MILLIGAN, in reply, said that he thought the operation certainly gave rather more room.

Mr. WYATT WINGRAVE. *Case of Cervical Fistula communicating with the Pharynx.*

The patient, a man, aged twenty-four, sought advice at the Central London Throat and Ear Hospital for a "discharging wound in the neck," with the following history: Two years ago he had a left-sided quinsy which burst in the usual way. On the following day he noticed a tender swelling behind the angle of the left jaw, which he poulticed for three days. "As it did not seem inclined to burst," his medical attendant, Dr. Knight, opened it and let out some pus. Since then he has suffered from a constant discharge externally, and frequent appearance of nasty-tasting stuff in the throat. On examination a ragged depression was seen in the left tonsil covered with pus. A probe was passed through the external sinus to a depth of two and three-quarter inches upwards and inwards; it did not appear internally, but could be distinctly felt through the substance of the left tonsil. On injecting the sinus, fluid readily entered the throat, and he complains that it does so when he syringes it out himself. I confirmed this myself on several occasions. At the last attempt, however, I was unsuccessful. Some pocketing of pus below the wound necessitated another opening. The discharge has gradually diminished, and the probe only passes about an inch and a half, but even now he says that occasionally fluid passes into the throat whilst injecting.

The interest of the case obviously rests upon the relation between the original quinsy and the fistulous track. Is it a case of suppuration in a previously existing but unrecognized branchial cleft? Has the pus

burrowed to the surface through the deep cervical fascia? or is it simply a result of gland infection and suppuration?

Dr. DUNDAS GRANT. *Case of Papillomata of the Larynx removed by the Author with his Laryngeal Forceps.*

This was a case of a young lady, engaged in teaching, suffering from loss of voice of about seven months' duration. She was found to have a growth upon her right vocal cord, and one on the left, both in the anterior third. The one on the right cord was of considerable size, its length being equal to a quarter of that of the vocal cord. It was a light pinkish-grey colour, and with somewhat rough surface, appeared to be chiefly on the upper surface of the cord, but projected so as to partially overlap the left cord. The other was similar in character, but very much smaller, being not larger than a pin's head. By means of Dr. Grant's safe endo-laryngeal cutting forceps a large portion of the growth on the right side was removed, the anterior portions of the ventricular bands being pinched and somewhat lacerated from their having crowded into the forceps. Immediately the voice was restored to a very considerable extent. The patient complained of a little pain, but this passed off in a short time. Two days later the voice was found to have again lost its tone, and on inspection it was found that the small growth on the left vocal cord was still unremoved, the right cord being still raw and congested. It was seen that this little growth prevented the apposition of the cords just sufficiently to prevent the current of air from setting them in vibration, the space between them behind the region of the growth being very evident on attempted phonation.

After another day's rest the forceps were again applied and the small growth removed completely. The voice was then powerful, but hoarse. There still remained on the upper surface of the right cord a portion of the original growth, but as the voice was restored to usefulness, and there was no impediment to respiration, it was considered advisable to leave well alone and to abstain from further operative treatment, it being determined to make use of applications of a solution of perchloride of iron, and along with this to give the patient the benefit of a course of arsenic internally. A microscopical section of the small growth from the left cord was made by Dr. Pegler and shown to the Association. The section showed most beautifully the structure of a simple papilloma. The effect on the voice produced by the removal of the extremely small growth on the edge of the left vocal cord was most striking.

Mr. LENNOX BROWNE said, with regard to the last remark of Dr. Grant, that it was and had long been well known that a growth might spring from the side of the vocal cords and from the posterior commissure of the larynx with comparatively little interference with the voice, whereas the very smallest growth in the anterior commissure would prevent approximation of the cords in front and be absolutely fatal to phonation.

Mr. STOKER suggested the application of the galvano-cautery to the thickening on the right vocal cord. He recalled an aphorism of the late Sir Muriel Mackenzie's that, after restoring the voice to a certain extent

it was well to leave well alone, for it often happened that the result of subsequent attempts to improve the voice was to forfeit all that had been gained by previous operative interference.

Dr. DUNDAS GRANT. *A Case of cured Lupus of the Nose and Palate.*

This was a case of a young lady who came before the Association at one of its earliest meetings, when she had a very distinct lupus ulcer on the hard palate just behind the incisor teeth, and also in the right nostril. On the tip of her nose there was a cicatricial patch remaining as the result of an operation for the destruction of a patch of the same disease in that position. At that time the lupus material was scraped away from the interior of the nose and from the palate, and the galvano-cautery was freely used in both situations. The patient was then provided with a weak cocaine lotion, and a twenty per cent. solution of lactic acid for application to the palate at home; while in the nose she made a similar use of an ointment containing twenty grains of salicylic acid in the ounce, and internally she took small doses of liquor arsenicalis with compound syrup of the phosphates. Under this treatment the disease entirely disappeared, and has not since recurred.

FIFTH MEETING of the OTOLOGISTS and RHINOLOGISTS of BELGIUM at ANTWERP.¹

Antwerp, June 17th, 1894.

President—Dr. SCHLEICHER.

Dr. LECOCQ (Wasmès). *Paralysis and Anæsthesia of the Velum Palati.*

Dr. Lecocq saw two young girls, aged from eighteen to twenty, robust and in good health, without previous history of disease, whose nasal voice and difficulty in deglutition made him think, in the first instance, of paralysis of the soft palate. This paralysis was complete, bilateral, and, in addition, was accompanied by absolute anæsthesia. The affection came on gradually several weeks before without any perceptible inflammatory lesion, and, indeed, diphtheria could not be appealed to in these cases. The facial nerve in its passage through the petrous bone gives off motor branches for the palatal muscles. Its responsibility could not be accepted either, because there was no paralysis of the muscles of the face. There was no meso-cephalic or bulbar affection to which these symptoms of paralysis could be attributed. Dr. Lecocq concluded that it was an essential paralysis of the palate. This affection is little recog-

¹ Reported by Dr. HICQUET (Brussels).

nized in medical literature, but it is explained, following the works of certain French authors, by neuritis starting in the small nerve branches themselves, without there being any inflammatory extension coming from neighbouring organs. He prescribed internal medication, purgatives and strychnine, without any result; and the employment of continuous currents, both weak and powerful, had no better effect. The interrupted current, on the other hand, succeeded surprisingly, and from the first sitting improved the deglutition and the voice. From this moment the cure proceeded rapidly, and has continued up to the present.

Dr. W. POSTHUMUS MEYES (Amsterdam). *Exhibition of an Instrument of Value in the Treatment of Chronic Inflammation of the Maxillary Sinus.*

According to Dr. Meyes, the best treatment for chronic inflammation of the maxillary sinus, and the only one he ever makes use of, is the perforation through the alveolus. After the extraction of the affected molar tooth, he perforates the upper jaw through the alveolus by means of an American drill, and he places in the opening a little silver tube fixed to the next molar. If the molar which ought to serve for support is not present, he has the tube fixed by an appropriate apparatus by a dentist. The difficulty which he has met with in the use of the tube consisted in preventing the continuous flow of pus into the mouth. After numerous attempts by means of various materials he has been able to close the tube. He had a small spring cover constructed, which can be opened at will to allow the outflow of pus. As the apparatus made at first in silver easily deteriorated, he has had it manufactured in gold. The price of the instrument is, of course, higher, but patients are very pleased with it. He has found no other method of treatment preferable to this.

Dr. BECO (Liège). *Delstanche's Extraction of the Malleus according to his Method, and with his Instrument.*

Since the demonstration made last year at Ghent by the Brussels professor, Dr. Beco has had the opportunity of performing this operation three times under different conditions, which have given him the means of judging of the method and drawing the following conclusion from the facts which he had observed:—

First: The application of Delstanche's extractor is easily made.

Secondly: The section of the tensor tympani is executed without difficulty, and is very perceptible at the moment when that takes place. It is only necessary to make several antero-posterior sawing movements, which serve, in addition, to isolate the ossicles.

Thirdly: The see-saw movement which is given to the malleus is effected without resistance, and with great certainty, without risk of fracture.

Fourthly: The ossicle is drawn out by the annular extractor itself, if one is careful to keep the instrument close against the superior wall of the meatus. If it drops out *en route* we can remove it by means of an ordinary forceps.

Fifthly: While the operation is accomplished easily, safely and

rapidly, it causes no unnecessary ulceration, and is not followed by any troublesome consequence attributable to it, nor by any complication.

Sixthly : To render the operation rapid it is necessary to illuminate the ear well, to anæsthetize the membrana tympani, or the patient, and to make without delay the incisions necessary for liberating the handle of the malleus. If it is done slowly the blood covers up the field of operation, and it is necessary to interrupt proceedings to mop it up. This is generally necessary after the incisions are finished, because in order to introduce the manubrium into the ring a clear field of view is required. Once the ossicle is engaged in the ring the rest of the operation can be performed in the dark. It is sufficient to have the head of the patient firmly fixed in order to terminate the operation in a few seconds.

Three mallei extracted entire were then shown.

The first operation was carried out without assistance after simple cocainization in a patient aged twenty-seven, who was very nervous, and who was the subject of caries of the wall of the attic. A slight vertigo was felt at the moment of dislocation of the ossicle, a sensation of emptiness when it was extracted, and the pain was quite bearable. The extremity of the manubrium was concealed by the hypertrophied mucous membrane of the labyrinthine wall. The terminal portion of the extractor, with a cutting edge acting like a curette, made it possible to make a trench in the mucous membrane before the ossicle could be taken hold of. After the operation there was a little pain in the fundus of the ear in the neighbourhood of the wounded promontory ; there was no reaction, or any disturbance of the general health.

The second malleus was carious. The child, aged twelve years, was anæsthetized with bromide of ethyl, with the assistance of Dr. Chaland. The operation presented no other incidents than those belonging to narcosis. There were no sequelæ, and no subsequent pain.

The third was the longer history : a boy, eleven years of age, son of a syphilitic and tuberculous father, at the age of ten and a half years had hypertrophied palatal tonsils, adenoid growths, and on the right side "Shrapnell disease," with extremely fœtid secretions. The adenoids were removed, then the tonsils ; irrigation with antiseptic douches, also Hartmann irrigation with carbolic and corrosive sublimate ; a counter opening in the inferior segment of the membrana tympani ; internal specific and tonic treatment. All this was followed by a very marked improvement in the general condition, and the patient had all the appearance of flourishing health. There was considerable local improvement, absence of fœtor and pain, very little inodorous muco-purulent secretion, and improved hearing. The treatment was continued, but in a milder form. In the first week of August, 1893, there were sudden extremely violent pains in the region of the left shoulder, with intense fever and marked evidence of systemic infection. In short, there was acute osteo-myelitis in the neighbourhood of the head of the humerus, a separation of the periosteum, and drainage, which arrested the process and put an end to the pain ; opening of the secondary foci ; repeated curetting of the fistulous passages ; finally, in one sitting under chloroform anæsthesia, Dr. Beco proceeded to extract the carious malleus (the

ear, which had been somewhat forgotten of late, again discharged pus in abundance) and to open the medullary canal of the humerus, from which numerous sequestra were extracted. At the present time the arm may be considered as cured, but the ear still emits pus and will call for a repetition of the curettement.

Dr. Beco compares this case to one which he published in 1892, in the "Annales de la Société Médico-Chirurgicale de Liège" (analyzed in Gouguenheim's "Annales" in 1893, and in the "Presse Médicale Belge" and in the "Clinique" in 1894). This was the case of a man, fifty-seven years of age, sent to the hospital for rheumatism. He had a focus of osteomyelitis in each tibia. Soon the same thing developed itself in all the bones of the lower extremities, and at the same time there reappeared an old neglected otorrhœa. The remarkable thing was that the pus of the otorrhœa and the pus of the various osseous foci gave pure culture of staphylococcus albus.

Prof. GUYE (Amsterdam). *On Polypi of the Choana.*

Prof. Guye showed several specimens of polypus of the choanæ. He does not consider them as extremely rare; they are ordinary mucous polypi, but peculiar, owing to the site of their development, and offering consequently certain difficulties in extraction. He offered certain observations concerning the procedure which is the best adapted for their removal. They are difficult to seize by means of the metallic snare introduced into the nose on account of their position in the posterior nasal fossæ, and one often makes vain attempts to get them into the loop, because they lie frequently more or less astride on the posterior border of the septum. The first thing necessary, according to Prof. Guye, for the extraction of polypi of the choanæ, and even for all mucous polypi, is a cold snare, and not a *metallic* one (? galvanic). They must be constricted with the cold snare, and then torn off. In cutting them with the galvanic snare we only remove a larger or smaller portion, and leave generally the larger part behind in such a way that, instead of being radical, the effect produced is almost always insignificant. It is nearly always necessary to employ a bi-manual manœuvre for the extraction of choanal polypi. Prof. Guye introduces the snare into the nose; then, passing his index finger into the posterior nares, he easily feels the loop, in which he endeavours to introduce a portion of the tumour. By means of the other hand he tightens the snare and completes the extraction through the nose. This proceeding has almost always succeeded with him, and frequently in cases where for more than a year other operators had been unable to clear away, after many attempts, anything beyond insignificant portions of the tumour. He showed a certain number of these tumours, and drew special attention to one of them which he was unable to catch even by the manual method. It was fairly hard, very rounded behind, and completely astride on the septum. The loop always slipped on the posterior surface as soon as it was tightened. At last he was able by introducing his index finger between the soft palate and the tumour to detach, one way or another, the root of the polypus. By a powerful pressure from below upward he was enabled to make the tumour snap off, and the

patient expelled it by the mouth. He next showed an enormous nasal polypus with papillomatous branches, which had produced very troublesome asthma. This one is equally a proof of the advantage of extraction by means of the cold snare. After its removal, at one sitting, the patient was cured without up to the present having had any recurrence.

It sometimes happens that, on account of irregularity in the shape of the septum, one is not able to introduce the snare into the nasal fossa. The loop doubles up, and on closing it nothing is brought away. For these very disagreeable though, fortunately, rare cases, Prof. Guye has had constructed a guide intended to direct the wire. The extremity of the stem is in chemically pure silver, and consequently capable of being easily bent and curved. At its extremity is a rounded groove, which holds the wire and leaves it in position when the instrument is removed. On various occasions he has found this instrument of real service.

Another difficulty of equal rarity may be present. One sometimes fancies that with the snare one has surrounded the polypus, but when it is tightened up it makes half a turn and escapes. In order to prevent this awkward occurrence he has had a little hook constructed, which is pierced with a hole like that of a needle. After having passed a silk thread through the hole, he seizes the hook by means of Péan's catch forceps, fixes it in the body of the polypus, and lets the thread hang. At the moment of constricting the polypus he can thus prevent it from turning over, as was previously apt to occur, by gently drawing the thread. In the rare cases in which the use of the hook was indicated, the procedure was perfectly successful.

Dr. EEMAN (Ghent). *Carcinomatous Tumour of the Vocal Cord.*

Dr. Eeman showed a man, aged seventy, from whose left vocal cord he had removed, a month before, a tumour of corneating carcinomatous nature demonstrated to be such by the microscope. Several operations carried out by endo-laryngeal methods, and energetic cauterization having remained without result, he then carried out the removal of the tumour by means of curved scissors, after having successively, and after an interval of three days, performed tracheotomy and thyrotomy. The result of the operation was very simple, and the success, from the point of view of phonation, was comparatively good.

The vocal cord which was removed has been replaced by a cicatricial cord, which allowed the restoration of an almost normal voice.

Dr. LAURENT (Brussels). *Catheterization and Exploration of the Sphenoidal Sinus without a Speculum.*

Dr. Laurent assures us that in a considerable number of cases it is possible to practise catheterizing the sphenoidal sinus without the assistance of a speculum, as is done habitually. The means that he employs are the following: The extremity of a canula, curved at an obtuse angle, is introduced into the nose, passed parallel to the direction of the septum, while the handle of the instrument is kept parallel to the dorsal line of the nose. At the depth of six and a half centimètres the point is turned outward, and for about a quarter of a circle. The

mouth of the canula is lowered, and the point penetrates directly backward and outward, which permits of the exploration of the sinus in nearly every direction. A second proceeding utilized by Dr. Laurent consists in introducing the catheter to the depth of seven centimètres and a half to the postero-superior angle of the naso-pharynx, then drawing it forward for one centimètre, and turning it outward for a quarter of a circle. It is then possible, according to the author, to penetrate the sinus in at least fifty per cent. of the cases. His experiments have been made on the dead body.

Dr. EEMAN (Ghent). *On the Nature of Sclerosis of the Middle Ear.*

The writer makes a preliminary communication. The researches which he had carried out with regard to the nature of sclerosis of the middle ear are sufficiently advanced for him to make known the results up to the present. He declares that the affection concerned ought to be considered as of a trophic nature. It is due to a bulbar lesion of bacterial origin, having its exact situation between the nucleus of the auditory nerve and the roots of the trigeminus.

Dr. SCHLEICHER dwells on the importance of this fact, which obliges us to separate most definitively sclerosis of the middle ear from the ordinary forms of chronic median otitis. For his part he has always thought that the entity of sclerosis was a distinct one, and he considers this form as incurable.

Dr. EEMAN says that incurability of this form of disease does not seem to him proved, but that is a point which it will be necessary to examine later on.

Dr. BROECKAERT (Ghent). *Treatment of Sclerosis of the Middle Ear by Injections of Liquid Vaseline.*

Dr. Broeckaert has experimented with injections of liquid vaseline through the tube in forty-five cases of sclerosis of the middle ear. Catheterization, followed by the injections, was carried out regularly twice a week, and the effects were only noted after several months of treatment. It is clearly seen from a table of the results which he has drawn up, that in only eleven cases in which the progress of the affection had reached an advanced stage, no amelioration was observed. In all the other cases there was a beneficial effect. The tinnitus was influenced favourably, and in eight cases it disappeared completely under the treatment.

Dr. Broeckaert thinks that it is necessary in the treatment of sclerosis to give up the use of any other kind of medicated installation except that of vaseline. The use of this may be combined, strictly speaking, with the different mechanical proceedings capable of bringing back to their normal situation the organs of transmission, and of diminishing at the same time their rigidity.

Dr. BAYER (Brussels). *Glycosuria of Nasal Origin cured by the Restoration of Nasal Respiration.*

The etiological influence in diabetes of affections of the respiratory passages, especially of the bronchi and lungs, is admitted as a fact clinically, and experimentally demonstrated, but up to now we have no

case recorded of glycosuria of nasal origin. The author relates a notable case of glycosuria, due, according to all probability, to a complete nasal obstruction, for the affection disappeared as soon as free nasal respiration was established. The cure was very prompt in showing itself, which leads us to suppose that the malady depended more upon a reflex cause than a *régime* of insufficient oxygen.

Dr. DELSTANCHE (Brussels). *Demonstration of Instruments.*

From experiments made upon the dead body, with a view to familiarizing himself with the extraction of the incus according to Ludewig's method, Dr. Delstanche has come to consider this operative procedure, not only as little trustworthy in its results, but as likely to set up disturbances which he could only consider as regrettable, consequently he recommends that it should not be practised except in those cases in which the long process of the incus is inaccessible to view, even after the preliminary removal of the malleus; but little as this process may be visible, it is upon it that we must act in preference for the removal of the bone. The instrument Dr. Delstanche has had constructed, and which he exhibited to the meeting, is intended for cases of this second category, and, according to him, renders the operation more simple and easier than it is if recourse is had to forceps, which so frequently break the part of the long process which is seized between its blades, or to the metallic snare, which often cuts it through. This new extractor for the incus consists in essence of a small oval ring fixed at the extremity of a supporting stem in the direction of its length. The anterior and posterior segments of it are raised in order to give a sufficiently extensive surface of prehension to seize the long process of the incus, against which they ought to press without danger of its being broken. The posterior portion of the ring is movable, and is controlled by means of a lever which, under the action of the operator's thumb, brings it nearer to the opposite extremity so far as may be necessary to fix the ossicle firmly, but not sufficient to crush it, for whatever pressure is exercised upon the lever the opposing surfaces remain always separated the one from the other by about half a millimètre, a screw permitting of the fixation of the loop to the degree of closure desired.

The operative *technique* consists of four steps: (a) The separation of the articulation by means of a small hook which is insinuated behind the long branch of the incus, and serves next (b) to exercise a slight pressure upon this process from behind forward in order to separate it from the stapes, and to render it more easy to seize with the instrument. (c) The long process is seized in the loop of the extractor, and this being once tightened the ossicle is fixed firmly and cannot escape. (d) A forward movement is then made so as to loosen the process from its articular relations, which in any case are very loose, with the inferior border of the entrance to the antrum; then after it is drawn backward as far as possible into the tympanum it is pulled outwards, care being taken during this last step to elevate the handle of the instrument strongly so as to give the ossicle an oblique direction, which greatly facilitates its extraction.

In those cases in which the long process is invisible or destroyed, Dr. Delstanche thinks that it would, perhaps, be possible to dislodge the incus from behind forward, either by means of the hook used by Ludewig, or of another instrument constructed on the same principle. There would thus be obviated the inconveniences of Ludewig's operation, namely, avulsion of the stapes; injury of the fallopian canal; propulsion of the incus into the antrum. The first attempts in this direction led him to consider the thing as possible, as he hopes to be able to demonstrate at the next meeting of Belgian otologists.

Dr. Delstanche exhibited also a small apparatus designed after the model of his aspirator and injector, but modified for the purpose for which it was destined. Suppression of the little glass vessel situated at the junction of the canula and handle, but with the addition of a valved tube which leaves the body of the pump to plunge in the liquid intended to be injected. This arrangement permits of the renewal of the liquid in the body of the pump in proportion as it is used up. In this way the elastic canula (*mandarin caché*) with which the apparatus is furnished, being once introduced into the canal communicating with the focus of suppuration, can remain in position until the cleansing of the cavity is completed. The principal advantage of this new apparatus, which is chiefly of use in suppurations of the attic, is to furnish a series of powerful interrupted jets which, his experience shows, have an eliminating action much more marked than the continuous current.

Dr. WAGNIER (Lille). *Burn of the Pharynx, Larynx, and Œsophagus from the injection of sulphuric acid.*

A youth, aged eleven years, drank, by mistake, a large mouthful of sulphuric acid of 66°. He received prompt assistance, and only a few minutes had passed before a large dose of magnesia was administered and his stomach was irrigated freely with alkaline liquid, but in spite of the rapidity with which attention was given to him the caustic liquid had already produced severe burns, of which the first effects were extremely serious. The fever was intense and the general state very bad. Urine, albuminous; there was a general desquamation of the tongue and of the whole of the buccal membrane; respiration was very difficult; deglutition completely impossible; and for the first two days there were intermittent threats of suffocation, such as to suggest the idea of tracheotomy. The oppression and the fever passed off after a few days, but the absolute impossibility of swallowing persisted for eight or ten days, during which the patient was kept up by means of injections of water and of soluble peptone. He was then able to take liquid nourishment, of which a small part was swallowed and the rest rejected, this being frequently accompanied by a quantity of mucus tinged with blood.

This state persisted for seven weeks, when towards the middle of July, 1892, Dr. Wagnier was called for the first time to see him. He was requested to examine with a laryngoscope, in order to find the cause of the habitual expectoration of a little blood after the painful efforts he made in order to swallow. He observed at first the complete integrity of the lips, the gums, and the teeth, as also of the anterior portion of the

tongue. On the most posterior portion of the dorsum of the tongue he observed a yellowish-white superficial cicatrix, not circumscribed, and without adhesions, and not appearing to interfere with the function of the organ. The soft palate was almost whole but seemed a little paler than normal. The uvula had not been affected. The anterior pillars had been spared, the tonsils were slightly cicatricial on their surface, some short adhesions behind the right tonsil to the posterior pillar of that same side. The posterior pillars were transformed into two large white cicatrices spread out and through three borders attached to the posterior wall of the pharynx, forming on each side a crescent, of which the inferior extremities joined together, narrowing considerably the entrance of the nasal part of the pharynx. The portion of the mucous membrane between the uvula and the posterior pillars, to the size of a half franc, appeared unchanged. Below, the mucous membrane covering the posterior pharyngeal wall was transformed into a large cicatrix, with narrow and long horizontal striae, presenting true median raphé. At one point of this raphé there was a hypertrophied granulation, which seemed to be the point of origin of the slight oozing of blood. The glosso-epiglottic fossæ did not appear to be affected. The median glosso-epiglottic field was intact, and appeared elongated; the lateral glosso-epiglottic ligaments projecting horizontally on both sides as far as the posterior wall of the pharynx, and forming thus over the lateral portions of the larynx a kind of diaphragm, which completely concealed those parts, so that no vestige of the pyriform sinus could be seen. The epiglottis was truncated at its superior extremity, and appeared as if it had been cleanly cut off. The anterior portion of its border and its buccal surface were little changed, but by its lateral extremities and its free borders it was soldered to the posterior frontal wall. For all that it was possible to see in the interval which separated them the glottis was unaltered, and a portion of the aryteno-epiglottic ligaments scarcely changed, their movements being well preserved. Further, the voice was almost normal, and without any special marked change of tone.

At this first visit Dr. Wagnier rested content with cauterizing slightly the ulcerating granulation on the posterior wall. Deglutition appeared to be improved, and there was no more blood in the rejected matter. During the first days of August the patient commenced to go out. He was always very weak. His weight fell to twenty-six and a half kilogrammes (before the accident he weighed thirty-four kilogrammes). Nourishment beyond the injections of peptone is almost in abeyance, the patient rejecting the larger amount of the nourishing soups which he attempted to swallow. An attempt was made to pass an œsophageal tube. It traversed pretty easily the first narrowing, but very soon was arrested at a second, the most important one, which admitted with difficulty No. 8 bougie, and appeared to be caught at the entrance of the œsophagus. The child was taken to Prof. Bouchard, of Paris, who tried to pass a No. 17, but without success. On the 5th August treatment by means of temporary and progressive dilation (Bouchard's method) by means of Richet's olivary bougies, weighted with lead filings and fixed on whalebone stems. On the 7th August the first bougie, No. 8, of

Charrière's gauge, say two and two-thirds millimètres in diameter, passed completely.

Each day a bougie was introduced, and on the 13th August a No. 11 could be passed. The patient was able to somewhat better swallow milk and thin semi-liquids; his weight reached twenty-eight kilogrammes on the 15th August, thirty kilos on the 26th, an increase of about four kilos in twenty days. For some days after the dilatation was continued, up to the 23rd August, when it was possible to pass No. 18, but this caused a feeling of suffocation, and, although No. 22 was passed upon the 8th September, it was impossible for the patient to bear it, on account of the choking. This was attributed to glottic spasm, and cocaine was employed in order to combat this, but without any success.

Dr. Wagner then again saw the young patient about a month and a half after his first inspection. Things had completely changed. The two sides of the epiglottis, soldered to the posterior wall of the pharynx, had joined together and formed the borders of an opening which was scarcely more than six millimètres in diameter. Under these circumstances food in the shape of soup could be swallowed—very slowly, it is true, but without getting into the respiratory passages. It was then clear what was the reason of the impossibility of practising œsophageal catheterism. The tube, although it entered perfectly well into the œsophagus, filled up all the space by which air could penetrate. Dr. Wagner then proposed to carry out the dilatation of this orifice which he found so small, and for that purpose made use of an instrument in the form of a recurved forceps, of which the blades opened when the rings were pressed together. He assisted their action by means of lateral incisions, made as far back as possible, in such a way as to divide more particularly the adhesions to the posterior wall. These incisions, such as Dr. Lermoyez had also recommended, were made by means of a small laryngeal knife, with a rounded extremity. The first incisions, followed by dilation with the forceps, were made on the 17th and 19th December, Nos. 25 and 26 catheters passing pretty easily. On the 28th further lateral incisions were made, which permitted the use of several numbers higher. In order to divide the bands, in which the laryngeal knife had a tendency to slide on account of their oblique position, Dr. Wagner had the instrument constructed, which he exhibited, acting like scissors, and mounted upon Schroetter's handle. This instrument enabled him to enlarge the pharyngo-laryngeal opening very considerably. These operations caused very slight loss of blood.

Later he made use of the galvano-cautery, by which he gained little space, the edges becoming thicker towards the lateral portions. The same thing took place with the electrolysis, but which the patient could not tolerate long enough for it to do any good. On the whole it was dilatation, assisted by lateral incisions, which gave the best results. At the present time the opening was considerably increased, and was of a triangular form, with a base of a centimètre and a half and a height of two centimètres. The edges were thick but dilatable, and, by means of the expanding forceps, a very considerable separation could be effected. Oesophageal catheterism was continued side by side with dilation of the

pharyngo-laryngeal stricture, but the sittings have been less and less frequent. At first the interval could be extended to twelve days, then to fifteen and more, without contraction, but, on the contrary, with an increase in the size of the bougies introduced. At the present time it was possible to pass, with great ease, No. 53 (176 millimètres). The child had recovered all his powers, his appetite was good, and his digestion easy. No attempt has been made to pass anything larger than No. 53, which is only introduced every three or four weeks, at the same time that the pharyngo-laryngeal cicatrix is being dilated. There are hardly any records similar to this in which the lesions displayed by the pharyngeal mirror have received beneficial treatment. By overcoming the obstacle which prevented œsophageal dilation the most important aim in this case was fulfilled, and it is on this account that Dr. Wagner was anxious that the observation should be made public.

Dr. CAPART (Brussels). *On the Surgical Treatment of Laryngeal Tuberculosis.*

The surgical treatment of the laryngitis of the phthisical may be extrinsic or intrinsic. The first includes tracheotomy, laryngotomy, even laryngectomy, which is, perhaps, the operation of the future. The writer would say only a few words upon tracheotomy, which had been so warmly recommended among others, by Dr. Schmidt of Frankfort. This author recommends it not only as a palliative means against dyspnoea, but as a curative proceeding, especially in those cases where the pulmonary lesion is latent (because, if we may believe the pathological anatomists, it is never altogether absent), or is at least of very slight importance compared with the concomitant lesions in the larynx. Dr. Capart's opinion on this subject is not formed, because if he has occasionally seen cases of tuberculosis improved to an astonishing degree, and with great rapidity after tracheotomy, he has observed at other times that the tracheal wound can become infected, and that subcutaneous ulcers usually form, which contribute considerably to precipitate the fatal termination. Regarding intrinsic methods, he confesses it is difficult to keep a middle position between the abstentionists who follow the wanderings of the past, and only approach in a trembling way the treatment of this terrible affection, and on the other hand those whom he calls the anarchists of this specialty, who cut, who burn, who remove without pity or mercy under all circumstances. We know that formerly this disease was considered as a *noli me tangere*, and without equal. We were warned not to burn, as this would be followed by formidable inflammations—not to cut, for fear of infection of the wound, and one had to cross one's arms and leave everything alone.

We must not, on the other hand, run into the contrary error, but must know how to select cases. It would be inhuman to undertake a painful treatment in the case of an unfortunate with only a few weeks to live. In such cases we must advise sprays of morphia or cocaine, to which Dr. Capart adds small doses of boracic acid, practise the application of cocainized antipyrin, insufflate morphia, and inject morphia into the neck, by which process the transit of the patient towards his death is made

tolerable. The writer never undertakes an active treatment unless in those who retain some energy, and who have really the wish to get well—unfortunately, a rare quality among the tuberculous.

As regards the treatment, properly so called, Dr. Capart confines himself to what he formerly wrote. The best local applications are most certainly lactic acid and pyoktanin. Lactic acid may even suffice by itself at the commencement when the lesion is still only inflammatory, or when there only exist superficial erosions or ulcerations of slight extent; but there is a formal condition, and it is that the application is employed with discretion, that is to say that its action is strictly localized to the affected point and the solution used in as concentrated a form as possible. There ought to be produced at the spot touched a whitish layer, and the application ought only to be renewed when this has been detached and the inflammatory reaction has disappeared, a process which requires three, eight, or even fourteen days. He is definitely opposed to applications by continual swabbings with weak solutions, inundating the larynx by means of an enormous pellet of cotton wool. This is useless if not even injurious. Pyoktanin is excellent in the same way to produce cicatrization of ulcers, and also as an antiseptic agent after the more important operations. Among these are scarifications, incisions, scraping, or simple curetting, curetting with the removal of fragments, finally galvano-caustic measures.

The writer has now very seldom recourse to incisions; unless during the congestive exacerbations, with considerable œdema, and this of a transparent character, they give very little beneficial result. It is often necessary to return to them, however numerous and deep they may have been. On the other hand, curetting is indispensable in many cases. It is generally practised by means of Heryng's curettes, especially for ulceration of the two vocal cords, or ventricular bands, and of the posterior wall of the pharynx. He follows it up immediately by the application of pure lactic acid, but the method *par excellence*, although somewhat heroic, is the one that has been proposed successively by Krause, Heryng and Gouguenheim. The radical curetting is carried out by means of the author's double curettes or Gouguenheim's cutting forceps.

The impression remaining on Dr. Capart's mind from numerous operations is that we ought not to delay or fear to act with energy; we ought not to hesitate to remove voluminous fragments of the epiglottis, or of the ary-epiglottic folds, or even one or both arytenoids. As much as possible should be done at one sitting. The more energetically one operates the less consecutive reaction will there be. Relief is immediate, deglutition is much easier, the pains diminish, respiration is accomplished much better. It is needless to say that all precautions ought to be taken for the sterilization of instruments, and that an antiseptic application—say, of lactic acid or pyoktanin—ought to follow immediately. It is curious to see with what rapidity these losses of substance are made up and leave behind them a clear, smooth surface, but the writer wishes to repeat that recourse must not be had to these means, except in the case of patients who are energetic and calm, because we must be prepared for occurrences which require the greatest *sang-froid*. The speaker alludes

here to the hæmorrhage which is sometimes abundant, also to the entrance into the air-passages of fragments which have become completely detached, and may produce cough and violent spasm. Dr. Capart next considers the electrical proceedings, which include galvano-cauterization and electrolysis, and to which, in his opinion, recourse is not had sufficiently frequently. Thus, in the chronic cedema of the epiglottis or of the arytenoids, when slightly marked, one should have no hesitation in plunging repeatedly a fine cautery point very deeply into the parts until a sensation of resistance is felt. There will, indeed, be a little dysphagia for a few days, but the consecutive amelioration will be surprising. The same is true of electrolysis, which the writer has used for some years past. In his opinion it is the best means of combating the rebellious cedemas, or those irregularities which persist after more radical methods of extraction. The patient supports sufficiently well sittings of two or three minutes with an intensity of twenty or even thirty milliamperes.

In employing electrolysis one will never be deceived. Although it may excite surprise, the writer wishes to recommend a last means, which has rendered him most signal service. This is Koch's tuberculin, in the infinitesimal doses of one-tenth, two-tenths, five-tenths, and at the maximum of one milligramme injected once or twice a week. It is impossible to deny the existence, and one can follow it by sight, of the effect produced in the larynx. He is not deterred by the arguments, nor the sarcasms of the schools—he confines himself to facts. Further, he makes this excuse, that he only employs tuberculin in cases which he considers hopeless. Even in these circumstances he has obtained unexpected cures, and he could produce the subjects of them.

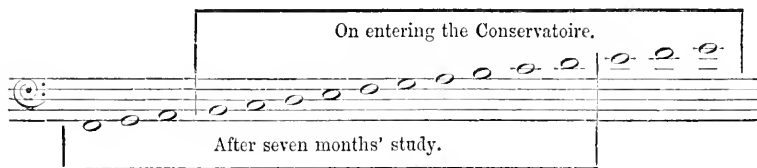
En résumé: Surgical treatment ought to be tried up to the last stages of tubercular laryngitis. It ought to be energetic if one wishes it to be efficacious, and in any event it should be antiseptic. It requires a considerable amount of courage and of patience on the part both of the operator and the patient. In acting thus, one will be often surprised at the improvement which takes place even in the general health, and if one has not always the good fortune to effect a cure, one may have the certainty of giving relief, which is always a consolation.

Dr. ROUSSEAU (Brussels). *Two Cases of Benign Tumour of the Larynx treated by means of Galvano-Cautery.*

It is a pity, according to Dr. Rousseau, that the galvano-cautery is so little used in the larynx. His conviction is founded upon a sufficient number of cases observed with care, of which the following have appeared to him particularly interesting:—

Case I.: D., aged twenty-five, student of singing at the Brussels Conservatoire, endowed with a fine baritone voice, was not long in observing that his range tended from day to day to get lower, and to acquire the quality and character of a bass—that is to say, that the extreme top notes of the chest register mi^3 , fa^3 , sol^3 , which he previously possessed, had completely disappeared to such an extent that it was only by very great efforts that he was able to emit the natural re^3 . On the other hand, he had gained three notes in the bass.

The following figure will show plainly the degree of displacement of the voice.



Further, this student had quite lost the head voice (falsetto) which he had formerly had of very good quality and easy emission. Strictly speaking, he was able to do without it, and would have been perfectly contented with his bass voice if this had preserved its quality, but after six or seven months of assiduous work it had become impossible for him to vocalize for more than a quarter of an hour without being affected with hoarseness, which persisted at times for twenty-four hours. If he wanted to practise a "*filé*" note the voice cracked at once. In addition, it had lost its soft quality, its roundness, all those characteristics which gave it charm, and singing occasioned him so much fatigue and necessitated such great effort that he considered he would have to give it up and change his mode of life. His speaking voice was normal.

Laryngoscopic Appearance: Altogether the aspect of the larynx approached the character of the bass type, as described by Gouguenheim, the vocal cords were long and wide, the laryngeal framework was of large dimensions in every direction, especially in the vertical diameter—in a word, the larynx was large and high.

Continuing his examination, Dr. Rousseau detected *from the pathological point of view* that the larynx was large and high. On the free border of the right vocal cord at the middle third of its ligamentous portion there was a small soft tumour of about a millimètre in diameter, sessile, and with a very wide base of implantation. It was translucent, of opal colour, perfectly detached from the rest of the vocal cord, which was highly congested. One would have thought it to be a small portion of the latter affected with œdema. Microscopical examination being impossible, it was necessary to base the diagnosis entirely upon the physical appearances of the tumour, and Dr. Rousseau was tempted to place it in the category of fibrous cellular tumours, otherwise classified as fibroma or free polypus.

Case II.: This case resembles the preceding one in many ways. It was that of a young unmarried woman, M., aged twenty-five, a student of singing, who, after a cold, awoke one morning absolutely aphonic. She was able, however, to make herself understood a few days later. When examined seven years after the beginning of the trouble, it was found by Dr. Rousseau that the speaking voice was thick, hoarse, disagreeable, and passing suddenly from a deep to a high tone, presenting the character of bi-tonality, due to the formation of vibration nodes. As

regards the singing voice there did not remain a single note, and it is unnecessary to add that the patient had long given up all idea of singing. All internal treatment, including that for phthisis, had been tried without success; even a foreign laryngologist had limited himself to making for several months cauterizations by means of a concentrated solution of nitrate of silver. It was then, without any hope of success, that she presented herself for examination by Dr. Rousseau, in March, 1893. He then found on the middle portion of the left vocal cord a soft polypus, surrounded by a congested areola of a bright red colour. The tumour was closely united to the vocal cord by a somewhat wide pedicle. A few days before the menstrual period the subjective and objective troubles increased in intensity, the voice became more hoarse, the oppression greater, the laryngeal congestion more pronounced and more extensive, and the tumour increased in size. All these phenomena diminished on the appearance of the flow.

Treatment.—Dr. Rousseau did not think it possible to make use in the cases related of snares or Voltolini's sponge, and does not understand how certain authors can make use of them so exclusively. He finds these instruments admirable in the case of benign tumours of considerable size, if pedunculated, but he considers them quite inapplicable for small sessile tumours with large base, which scarcely overhang the free border of the vocal cords. The knife, the *érasneur*, the curette, and above all, the forceps, seemed to him preferable if it is wished absolutely to make use of any cutting method, but being accustomed to the use of electric procedures he preferred to destroy the tumour *in situ*, and resorted to the galvano-caustic, or more exactly to the electro-thermo-caustic (Tripier). Out of the laryngeal cauterizers devised by Schleich he selected a fine point which he fixed in that author's handle. The lightness, the fixity, the precision of this instrument give it an incontestable superiority. Further, a platinum point being certainly the finest instrument that can exist, it is also the one that least of all conceals the field of vision, and when the tumour is of small size this point is of capital importance.

As regards the degree of incandescence, having decided not to exceed the dull red, the nature of the growth only requiring a superficial cauterization, Dr. Rousseau takes care before practising any intervention in the larynx to make a trial of the cautery in the open air, and by means of a rheostat to graduate the current in such a way that he may not overstep the degree of incandescence required. His cautery requires ten ampères. Reflex sensibility being abolished by means of cocaine, he was able to apply the cautery to the middle of the tumour, and to allow the current to pass for a second. As might be expected, there was instantly produced a fairly active congestion of the vocal cord, on which the cauterized portion stood out in dull white. There was no œdema, or dyspnœa, but a momentary aggravation of all the objective and subjective symptoms. When the slough came away there was a little irregularity of the vocal cord, but this disappeared subsequently without any new intervention.

In the two cases the cure was complete, to such an extent that D. was able, at the end of two months, to resume his vocal studies, and at the end of the year he obtained, as a baritone, a first prize with distinction. As regards M., examined before and after the intervention by Dr. Cheval, he was unable to recognize which cord had been operated upon.

Galvano conclusions.—1st. The galvano cautery is applicable to the interior of the larynx, contrary to the opinion generally admitted.

2nd. Its employment is indicated in those cases of benign tumours of the larynx which are sessile and of small size.

3rd. The lightness of the instrument, its delicacy, and its precision, give the electrical method an incontestable superiority.

4th. A cautery must be employed which is smaller than the growth to be destroyed, and must be applied near its centre.

5th. The degree of incandescence must be in relation to the more or less compact nature of the tissue which it is wished to destroy. In general it must not exceed a dull red.

6th. It is absolutely indispensable that, before any intervention, we should make certain of the degree of incandescence which will be obtained during cauterization; the cautery must therefore be tried in the air, and the current graduated in such a way that the dull red be not overstepped.

7th. It is necessary in thus graduating the degree of incandescence to take account of a certain loss of heat resulting from the more or less aqueous nature of the neoplasm to be removed, and to increase the heat of the cautery in the air sometimes as far as a cherry red. In the case of small fibro-cellular tumours on the free border of the vocal cord, their destruction is so rapid, electric cauterization so powerful, and the loss of heat so slight, that it can be neglected.

8th. The duration of the cauterization should be one second.

9th. The reactive phenomena produced by cauterization are unimportant.

10th. The inequalities which may be found after the drawing off of the slough will disappear generally without any further intervention.

11th. The transformation of a benign tumour into a malignant one under the influence of this cauterization has never been observed by Dr. Rousseau.

12th. From the point of view of the singing voice for the classification of certain voices still badly established or affected by wrong direction of training, the appearance of the larynx, completing the impression produced upon the ear, is of incontestable utility.

13th. It is most necessary that the pupil who intends to take up dramatic singing should make sure, before commencing his studies, that the vocal organ is in a physiological condition, or at least that it is such as not to be incompatible with the culture and the development of the voice.

14th. A great number of nasal or laryngeal affections are incompatible with singing. Vocalists who are affected with them have no future before them.

Dr. ROUSSEAU'S *Electric Currettes*.

The writer has no modification to make with regard to the communications published by him in 1891 at the last gathering of Belgian laryngologists, and in 1892 before the French Society of Laryngology, his views not having changed since that period. Only the just observations of Drs. Capart and Cheval who make daily use of Dr. Rousseau's method, his personal experience, as well as the remarks contained in a second edition of "Les Maladies des Fosses Nasales," by Dr. Moure, of Bordeaux, convinced him of the necessity of increasing the number of the models at first constructed. The table here annexed will take the place of all description. The electrical measurements have been furnished by Dr. Cheval. The long and narrow curette is intended for cysts of the vault of the pharynx. The instruments have been constructed by Albrecht, of Tübingen.

TYPE No. I.

Electric Currettes for Adenoid Vegetations of the Vault and Posterior Wall of the Pharynx.

	Distinctive Mark.	Total Height.	Length of Platinum Wire.	Thickness of Platinum Wire.	Electrical Resistance.	Difference of Potential.	Intensity.	Degree of Incandescence.
				mm.	ohms.	volts.	amperes.	
Currettes for adults.	a	4 centim.	17 mill.	0.7	0.0157	0.4475	28.5	Cherry red in open air at temp. 600°.
	b	3 c. $\frac{1}{2}$	15 m.	id.	0.0147	0.42375	28.75	
	c	id.	10 m.	id.	0.0104	0.4475	43	
Currettes for children.	a ¹	3 c.	12 m.	id.	0.0117	0.42375	36	id.
	b ¹	2 c. $\frac{1}{2}$	10 m.	id.	0.0101	0.4475	44	id.
	c ¹	2 c.	7 m.	id.	0.0092	0.42375	46	id.

TYPE No. II.

Electric Currettes for Adenoid Vegetations of the Lateral Wall of the Pharynx.

For adults and children.	1	3 c. $\frac{1}{2}$	9 m.	id.	0.0094	0.42375	45	id.
	2	3 c.	7 m.	id.	0.0115	0.495	43	id.

Dr. BECO (Liège). *Voluminous Nasal Cysts*.

Cysts of the nose apart from those of the septum have been very little described in the classical works. Dr. Beco has seen three cases, two at the anterior extremity of the inferior turbinated body, one at the external

angle of the right nostril. The diagnosis is easy, and in cases of doubt a puncture will make it clear.

Treatment.—Free opening, cauterization to modify the internal surface.

A fourth case is remarkable on account of its size and its tolerance. It occupied the left nostril, pushing the septum to the side so as to come in contact with the right external wall, which also was pressed upon. The velum palati was a little depressed. The internal wall of the maxillary sinus, examined afterwards, was also depressed. The nasal bones were separated to the distance of from twelve to thirteen millimètres from one another. The transverse diameter of the orifice of the nostrils was thirty-eight millimètres. At the level of the inferior extremity of the nasal bones proper there was six centimètres. At the root of the nose the internal angle of the eye was somewhat obscured. The nose, instead of being a cone with the base below, represented two truncated cones base to base; more simply, it represented the shape of a cask. These are the deformities that we scarcely see except in the case of malignant tumours. There was no sign of compression, or of any disturbance of the neighbouring organs, no exophthalmos, simply some overflow of tears. Fluctuation was distinct. The contents consisted of a yellowish serous fluid resembling hydrocele fluid.

Treatment.—Large incision and cauterization of the internal surface.

Resection of the major part of the cystic wall in the nostril. The inferior turbinated body was seen to be atrophied, the mucous membrane normal, and in no respect atrophied, in spite of the width of the left nasal cavity ($6\frac{1}{2}$ to 7 centimètres) due to the forcing asunder of the walls. Above there was a stump, the remains of the cyst. There was no trace of middle or superior turbinals. At the fundus was seen Luschka's gland. It was possible to explore the nose and the larynx by means of a mirror introduced directly through the nostrils. The diagnosis was a cyst of the middle turbinal. By means of the probe it could be made out to be quite independent of the septum or of the floor of the nose. The inferior turbinal could not be recognized. Dr. Beco thought it was a cyst analogous to those which one sometimes meets at the extremity of the inferior turbinal; the wall was formed of fibrous tissue, with a complete mucous covering of pavement epithelium.

Dr. SCHIFFERS. *Exhibition of Anatomical Preparations.*

A left temporal bone affected with otitis. Phlebitis of the cavernous sinus—purulent meningitis.

- * Dr. Schiffers showed the preparations from a patient, aged twenty-two, who died in the clinical wards on the 25th May, 1894. This patient had suffered for several years from chronic purulent median otitis on the left side, which had never been submitted to regular treatment. He came into the wards on the 24th January, 1893, complaining of intense headache, of pain in the left ear, and with all symptoms of pronounced fever. The evening before he had had a violent rigor, so severe as to cause a chattering of his teeth, and lasting for twenty minutes. The course of the temperature, as is indicated in the thermometrical chart, left no doubt as to the septic nature of the otitis. There were falls and rises of from

37 to 39½ and more. The symptoms presented were those of phlebitis of the left cavernous sinus. There was paralysis of the muscles of the eye innervated by the oculo-motor, ptosis and photophobia, disturbance of sight and paralysis of the pupil. A few days after his admission, the patient was seized with a general agitation without convulsions, after which he fell into a drowsy condition, and later into coma, lasting for three days. He remained in a critical condition for several weeks. Little by little he recovered, was able to rise, and complained no further with regard to his head. His sight improved, but the ptosis persisted. The patient insisted upon leaving the hospital on the 15th June, 1893, that is to say, after a residence of nearly five months. He was in a satisfactory condition to such a degree that for months he resumed his military duties.

He returned on the 21st May, 1894, to the Otological Clinic with symptoms of purulent meningitis of otitic origin, violent pains in the head, especially on the left side, and febrile disturbance, but his mind was fairly clear. Death took place on the 25th of the same month. What is remarkable in this case is the fact of the comparative recovery from phlebitis of the cavernous sinus, of which the patient had shown incontestable symptoms.

Dr. SCHIFFERS. *On the Pathogenesis of Perforating Ulcer of the Septum.*

So-called perforating ulcer of the septum ought to be more exactly named "round ulcer" or "simple ulcer." The constant situation of the loss of substance is the anterior and inferior portion of the septum which is unique. The form is circular, in exceptional cases oval, with its long diameter antero-posterior occupying one or both sides of the septum. When it is irregular it is no longer a simple ulcer, but due to a diathetic affection (syphilis, tuberculosis, lupus, or cancer). Most often the loss of substance is annular in configuration. The diameter varies from a few millimètres to a centimètre; sometimes it consists of a more or less funnel-shaped depression, with the base turned towards the nasal cavity, the margins clear cut, neither projecting nor toothed, and scarcely more resistant than the rest of the mucous membrane. Round about it the mucous membrane is generally normal; sometimes it is affected with catarrh. The base is more or less indurated, smooth, greyish, covered with a thin coat of molecular detritus. It is formed either by the perichondrium or the bare cartilage. This is the period of its existence as an ulcer. Later on there may be seen a cicatrix, or a wound in course of cicatrization. The cicatrix may be superficial or not, retracted or not. In the first case there may result from it a nasal stenosis, but more often there is seen a perforation of the wall, which is the typical perforating ulcer.

We can make out at what point it has formerly taken place, and it may be long antecedent laceration of a vessel followed by venous arterial or capillary hæmorrhage. The vessel generally affected is the part corresponding to the anastomosis of the infra-orbital and the facial. Often the ulcer is unaccompanied by any other lesion, or by any discom-

fort, and is found out by mere chance or rhinoscopic examination. Septal ulcer, without being a frequent disease, is not so rare as is generally believed. Among the predisposing causes we must note the age (childhood and adolescence). Although only discovered in the adult, its beginning often dates back for a very long time. The two sexes appear to be equally predisposed. In women it is found as often as men, according to the author's observations. The vascular changes, which lead to lowering of the blood pressure, constitute another predisposing cause. Among the occasional causes must be counted all the effects of irritation in the nasal fossa; frequent catarrhs, accompanied by a viscous secretion, producing a deposit of dry adherent crusts on the mucous membrane (frequent introduction of the finger into the nose).

The most usual origin is apparently infarction. It is difficult to demonstrate experimentally if the ulcer can be produced by arterial ligature, but *à priori* it is admissible. Venous thrombosis may also be the origin of the ulcerated process. In both cases the part affected is cut off from its circulation. It is macerated, disorganized by the nasal mucus, which does not on that account require to have any acid property, and all this leads to a loss of substance. In other cases the ulcer results from a degeneration of the vessels and of the glands, and the consecutive breaking up of the degenerated tissue. In certain exceptional cases the ulcer might be the sequel of a catarrhal ulceration. Simple ulcer of the septum would therefore constitute a definite morbid entity. It cannot be attributed to acquired or hereditary syphilis, nor to tuberculosis, lupus, cancer, nor to an abnormal enlargement of the orifice, which is found a little in front of and above the naso-palatine, and which leads into a little cavity of tubular form, which is directed obliquely backwards and upwards.

This formation is often seen very clearly in the fœtus, and represents the gland of the septum, which is very highly developed in certain animals. The examination of these lesions entirely excludes a congenital origin for the loss of substance. The ulcer follows a chronic course, has well-defined limitations, is always situated at the same part of the septum, has a natural tendency to cicatrization, all these being signs which differentiate it sufficiently from syphilis. It cannot arise from tuberculosis, an affection which is characterized by a spreading, destructive process, which shows an infiltration, in which the bacillus of Koch can be demonstrated. It is the same with lupus and cancer, which have each their distinct characters. A nervous origin must be excluded on account of the absence of modification of sensibility. The bacterial origin admitted by several authors since the excellent works of Hajek and Weichselbaum, who look upon the lesion as of diphtheritic nature, is open to many objections. The specific bacillus of diphtheria is that of Loeffler. The one found in cases of ulcer of the septum is coccus, arranged in masses or in chains (*staphylococcus pyogenes* and *streptococcus pyogenes*).

Then why should a coccus which exists under normal circumstances in the nasal fossa produce in certain cases only the affection we are dealing with? If we investigate the ulcerative process we find that it

results from a modification, which, commencing at one point of the mucous membrane, extends in width and depth in such a way as to form a truncated cone with a superficial base (the characteristic form of infarction). Most frequently nasal hæmorrhages have their origin at the antero-inferior portion of the septum, the invariable situation of the simple ulcer. It seems, then, much more simple and more in accordance with clinical and anatomo-pathological facts to admit the pathogenic process of infarction, at least in a large majority of the cases. The author, who has taught this theory in his course of lectures for several years, has observed cases in which he has been able to follow up the progressive development of this process.

Dr. SCHIFFERS. *Exhibition of Microscopical Preparations from Sarcoma of the Tonsil.*

Dr. Schiffers showed a specimen of very characteristic round-celled sarcoma. The limitation of the tumour to the tonsil permitted of his removing it completely by endo-pharyngeal methods. Recurrence took place twice, and the patient finally succumbed to general infection. The operation, however, enabled him to survive for more than seven years, during which his health was very satisfactory. The author prefers in general the endo-pharyngeal method, which has proved itself more efficacious than those methods which consist in making a way to reach the tonsil either by enlargement of the buccal orifice or by incision of the outside of the neck.

Dr. BOLAND (Verviers). *Instruction in Lip Reading for adults who have become deaf.*

Lip reading is the art of distinguishing aphonic or sonorous sounds, according to the position and movements of the organs which combine for their production, or in a word the art of reading speech in the mouth of another, the sounds not reaching the ear. It is known that, since a congress at Milan in 1880, this is the mode of instruction which has chiefly prevailed in the schools for the deaf and dumb. Evidently adults, whether deaf or not, may also acquire this knowledge. Dr. Boland states the case of a young girl who became deaf, and who learned lip reading by herself without the help of any teachers. How long does it take for deaf-mutes to learn lip reading? According to the cases that the writer has been able to follow he confirms the statements of Dubrale, who, as an experienced teacher, succeeded in three months in enabling a person who had become deaf to follow conversation. Evidently the length of the period of teaching will depend upon the visual sharpness of the subject, on his powers of attention and his intellectual faculty. This was certainly an exceptional case, and in general a professional teacher is necessary. Unfortunately, very few people are able to pay for these private lessons, the teachers are few, they are overburdened with classes, and few of the deaf people live in their neighbourhood.

The object of Dr. Boland's communication is to promulgate this instruction, and to put it within the reach of those unfortunates who are

condemned without appeal to deafness. This would be, if one might so say, to democratize this instruction. When once practitioners are well convinced of the efficacy of this means of putting the unfortunates in a position to continue or to resume their functions, to place them again in society, the pupils would increase in number so as easily to form classes. The director of a Deaf and Dumb Institution at Vienna declares that in one year a schoolmaster can perfectly well acquire the methods of conveying this instruction. The cases of adults who have become deaf, and who would be happy even at considerable sacrifice to learn the art of reading speech upon the lips, are sufficiently numerous to make one hope to find certain teachers devote themselves to giving this instruction. We hear at every moment that a considerable number among them are unable to find situations. Here, then, is a new and certainly a fruitful way open to them.

Dr. GUYE (Amsterdam) agreed with Dr. Boland. He was of opinion that it was necessary to entrust to specialists the duty of teaching lip reading.

Dr. DELSTANCHE said that he had observed a patient who, being suddenly afflicted with deafness only one year previously, had learnt alone, and without an instructor, to read speech on the lips in the most perfect fashion.

Dr. WODON (Brussels). *Modification of the Aural Speculum—an Instrument suitable for the Continuous Plugging of the Anterior Nasal Fossa.*

Dr. Wodon has made in the ordinary aural speculum a modification which consists in two oval openings placed in the long axis of the instrument, one after the other, and one opposite the other. The instrument thus modified permits of circumscribing a diseased point, and of operating on it without fear of injuring the neighbouring tissues. For those cases in which the diseased protuberance is too large to enter into the oval opening, and in which it is impossible to push the speculum into the meatus beyond the growth, Dr. Wodon employs speculums having a narrow bevelled extremity, which can thus surround the whole swelling.

Dr. Wodon has also had constructed an instrument intended to effect permanent plugging of the anterior nasal fossa. This consists of a forceps which is applied to the nose, something like a *pince-nez*, and of which the pressure can be regulated at will.

Dr. GORIS (Brussels). 1. *Infra-Orbital Neuralgia (ala nasi) of Twenty-two years' duration. Spheno-Maxillary Neurectomy. Recovery. Exhibition of the Patient.*

Dr. Goris showed a woman, aged forty-six, who suffered for twenty-two years from attacks of pain in the cheek and in the right nostril. These attacks had increased in intensity and in frequency, in spite of the employment of the whole therapeutical arsenal, including electricity. Dr. Goris, to whom the patient was brought, noticed that the most violent part of the pain was localized in the ala nasi, and that the least touch on the skin of the cheek, or of the ala, or of the lower eyelid, was sufficient

to cause a violent explosion of *tic dolooureux*. The writer decided to remove the infra-orbital nerve in the spheno-maxillary fissure. The operation was typical, with the exception of this detail, that the nerve was completely enclosed in the bone. It was necessary to cut a canal from its point of emergence as far as the back of the orbit, and having arrived at this point he cut the nerve in the spheno-maxillary fossa, and exercised energetic traction on the central part. The sequelae of the operation were absolutely satisfactory. The patient had no more attacks, and was able to resume her duties of keeping a gate. Dr. Goris thinks that before having recourse to more complex operations, such as resection of the nerve by way of the temporal region, to which he will have recourse in case of recurrence, it is right to attempt at least the operation described, which is free from danger when carried out with care.

2. *Abscess of the Orbit due to Necrosis of the Lachrymal Bone and of the Os Planum.*

A woman, aged forty-two, had been operated upon sixteen years previously for polypus of the right nostril. The extraction was then performed by means of forceps. There was a recurrence almost immediately afterwards, but after a second extraction the cure was complete. For two years and a half the patient had felt pain in the supero-internal angle of the right orbit. There was some swelling, and the eye deviated towards the right, and there was a slight degree of exophthalmos. The skin became red, and a certain amount of pus made its way out. Then everything settled down again.

In the month of February, 1893, the abscess reappeared and the suppuration established itself so as to be almost continuous—that is to say that the pus accumulated pretty quickly, and then suddenly, to the surprise of the patient, it ran out in great abundance over the skin of the face. In order to get rid of this very troublesome inconvenience, she consulted Dr. Goris, and this is what he found: at the superior and anterior angle of the right orbit there was a slight redness of the skin, at the centre of which there was a small crust covering a fistulous orifice, into which it was possible to introduce a probe as far as the fundus of the orbit. The internal wall gave the sensation of bare bone, and there escaped a few drops of pus from the fistula. The eye was in the condition previously described—pushed forward and outward. In the interior of the nose there was found a simple hypertrophy, but of considerable extent, of the middle turbinal, but there was no pus nor polypus in the middle meatus. Dr. Goris decided to operate. He excised the fistulous orifice in such a way as to have an opening large enough to admit his little finger. A quantity of pus then flooded the field of operation. The curette was introduced, and with it the diseased bone was scraped and removed, and almost the whole of the inner wall of the orbit, and a large communication was established between the orbital and nasal cavities. The abscess reached as far as the fundus of the orbital cavity, of which the outer walls were curetted, the greatest care being taken of the inner wall formed by the eyeball and its muscles. The writer then swabbed the whole cavity with a solution of chloride of zinc, one in ten, and

plugged the wound down to its bottom with iodoform gauze. The subsequent dressings consisted in the injection of glycerine and iodoform, and plugging with iodoform gauze. One month after the operation the whole cavity had completely cicatrized, exophthalmos had disappeared, and at the present moment the patient is exceedingly well.

3. Pathological Fact observed on the occasion of an Operation of Exothyropexy followed by Thyroidectomy.

Dr. Goris showed a goitre which he had removed from a young girl, eighteen years of age, after having first practised the operation of exothyropexy, devised by Prof. Poncet, of Lyons. The goitre was hardly exposed to the air before its capsule became perfectly black, this colour remaining persistently. According to Poncet this change of colour is probably due to the action of the air. The writer equally observed (and this also immediately after the operation) really considerable serous exudation, to which is due the gradual diminution in the volume of the tumour; unfortunately from the third to the fourth day there came on some dulness at the bases, and the temperature, which had continued during the three previous days within moderate limits (38·8, 38·2, 38·5), then rose in the night of the third and fourth day to 40·5. The course of the pulse presented a curious phenomenon, which Dr. Goris observed equally in a patient operated on by Prof. Bardenheuer, of Cologne.

First evening.....	Pulse	80
Second „	„	124
Third „	„	136
Night of the third and fourth	„	160

He hurriedly called the colleagues who had assisted him, and in view of the inspiratory trouble present, which they thought to depend in part upon the compression of the trachea by the tumour, he rapidly carried out the operation of thyroidectomy. In point of fact, the trachea was compressed like the scabbard of a sabre. The pulse remained the same, at 160, and the patient succumbed a few hours later, after a series of fainting attacks.

The writer thought it well to draw attention to this fact of the great acceleration of the pulse noted in two cases of thyroidectomy which had been carried out most successfully as far as the operation was concerned. He observed this same acceleration also in a case of simple tracheotomy, where he had to incise to a slight extent the thyroid body in order to get the canula rapidly introduced. According to Dr. Goris these observations show again that there are some very intimate relations between the thyroid gland and the heart, which pathological physiology has not yet cleared up.

Dr. DELIE (Ypres). *Dropsy of the Maxillary Sinus; Nasal Hydrorrhœa.*

Mademoiselle X., aged twenty-eight, schoolmistress, had at the level of the cutaneous fold between the cheek, the ala of the nose, and the upper lip on the right side, a tumour of one and a half centimètres in height and five centimètres in diameter. At first sight one would have taken it for an abscess

of the gum at the level of the canine or incisor tooth. In June, 1888, without any tangible cause the patient was attacked with inflammation of the right cheek. The practitioner, thinking it was an abscess, made an incision into the gum over the canine. The young lady could not say what kind of liquid escaped. From that time swelling persisted at the region first affected, and any exposure to great cold set up swelling of the right cheek. During the holidays of September, 1891, being occupied with work in the fields, she was obliged to have her head constantly lowered; she then felt severe pain in the teeth and the cheek, which later became the seat of considerable swelling. A new abscess (?) formed. An incision was made at the same place as on the first occasion, and was followed by an improvement of all the symptoms. In February, 1892, the same course of events took place. The patient states that at this time the liquid which escaped was composed of water mixed with a little pus and blood. The opening of the collection was maintained for eight days, but from the third day after cicatrization the cheek became as tumid as before the operative intervention.

A year passed, during which the patient remembers that she was subject to frequent and severe attacks of neuralgic pain radiating into the teeth, the cheek, the temple, and the whole of the right side of the head. She recollects equally that for two years a clear watery fluid flowed from the right nostril whenever she lowered the head, especially in the earlier part of the day, or when she suffered from migraine. The action of blowing her nose with force brought about some manifest relief, but only of very short duration. At night, in order to enjoy a calm sleep, she had to lie upon the right side. If by inadvertence she lay on her back, or on her left side, an itching soon took place in the back of her throat, and this brought about attacks of spasmodic cough. It was during the course of the fifth year of her disease that she sought the advice of Dr. Delie, who made the following observations. Over the tumour the cheek was tense, and was redder in tint than the rest of the face. As regards the mouth, the labio-gingival angle over the second incisor, the canine, and of the first molar, was occupied by a tumefaction of fully a centimètre in height. Of the right upper teeth the canine alone was sound. The first incisor was becoming carious. The second incisor and the last molar were only represented by small stumps. The other teeth had disappeared, owing to caries, or to having been extracted. The palatine vault was normal. Anterior and posterior rhinoscopy revealed no pathological phenomenon. On examination by transillumination, the electric lamp placed in the mouth seemed to light up the right side of the face more than the left, and the two eyes appeared equally luminous. To the touch the tumour was soft, and manifestly fluctuating. There were here and there places more resistant, and offering a certain crepitation on pressure produced by the osseous *débris* of the interior wall of the maxillary sinus at the level of the canine fossa. The general condition was good, and the patient had never had any febrile attack.

Diagnosis: Accumulation of non-purulent liquid in the maxillary sinus.

Treatment: Dr. Delie made a large transverse incision of the whole

tumour in the furrow down the lip and the gum. There escaped about twelve drachms of a watery colourless liquid, but with here and there slight traces of blood, containing numerous crystals of cholesterine. The liquid was neutral, and the patient said that it tasted very salt. The writer removed with the scissors the floating edges of the primitive tumour in such a way as to leave an opening of a centimetre and a half in diameter in the sinus, and washed it out freely with a disinfectant. Was this a serous inflammation, or a cyst of the sinus? In order to make the diagnosis, Dr. Delie, by introducing a lamp into the cavity, made a minute inspection of the whole of the mucous lining. This was smooth, pink, a little swollen owing to the infiltration of the tissues by the serous fluid; there was no trace of cystic or polypous granulations. The only thing seen was a projection of about three or four millimètres, a kind of stalagmite formed by the healthy root of the canine tooth. In order to make sure of the absence of any cystic wall, he slid a probe along all the different walls, imparting to it a see-saw movement, and so endeavouring to detach, if possible, the wall of the cyst from that of the sinus itself. But this examination gave a negative result. One would therefore decide that it was a true dropsy of the maxillary sinus. The treatment consisted in daily disinfecting irrigations, followed by plugging of the sinus with iodoform gauze. The tenth and twentieth day cauterization with pure tincture of iodine. At the end of the fourth week the cavity of the sinus was no longer the seat of any abnormal secretion. The author was then in favour of closing the artificial opening in the canine fossa; the patient remained perfectly cured. Since the operation she has had no pain except on the one day, the 15th, when she had a slight migraine. The dental neuralgia completely disappeared. Caries of the teeth was probable.

Remarks.—One point to which Dr. Delie wishes to call attention is the etiology of the flow of watery fluids with which certain persons are afflicted during the day, and principally in the morning some time after rising. We are in the habit of attributing these nasal hydrorrhœas to the nasal diathesis, of which the manifestations are then supposed to localize themselves in the nasal mucous membrane. These persons suffer with frontal and occipital pains or with hemicrania, an abundant serous secretion flows from the nose, especially when the patient lowers his head. This liquid may be irritating, may provoke sneezing or keep up chronic eczema with fissures round the nostrils.

In these cases the writer says we should think of a catarrhal inflammation of the maxillary sinus, which frequently accompanies inflammation of the nasal mucous membrane. It is true it is easily cured, and ordinarily follows the retrogression of catarrh of the turbinated bodies. If the neuralgic pains radiating into the cheek, the temple, the forehead, and the occiput persist, and especially if the nasal hydrorrhœa is continued after the return of the nasal mucous membrane to its physiological state, it is necessary to explore the sinus, to probe it, and to free its natural openings, or else to create an artificial one by piercing the internal wall by means of a trocar immediately behind the anterior extremity of the inferior turbinal. A few boric irrigations (four per cent.)

are sufficient as a rule to bring about recovery. If the catarrh of the sinus does not disappear one must have recourse to the means usually carried out for the treatment of empyema.

DR. DELIE showed an *Exostosis of the External Auditory Meatus*, which occurred in a boy aged fifteen, and had as its consequence almost complete deafness on the left side, and violent attacks of neuralgia.

DR. BUYS (Brussels). *Contribution to the Study of the Anti-Myxœdematous Substance of the Thyroid Gland.*

Dr. Buys exhibited a specimen of a product extracted by him from the thyroid gland of the sheep. This is the procedure which he followed. The glands, having been removed antiseptically, are finely divided in a mortar, where they are left to macerate for twenty-four hours in neutral glycerine (sixty cubic centimetres of glycerine for twenty thyroid lobes); the fragments shrivel up as they become dehydrated. At the end of twenty-four hours they are filtered upon a fine piece of linen, and eight volumes of ordinary alcohol are added to the filtrate. They then form abundant floccules of a yellowish colour, which tend to precipitate. A first portion of this precipitate is taken by means of a filtrate through linen; the remaining liquid is turbid. It is again filtered; this time through Joseph paper. The two precipitates obtained are washed upon their filter by means of alcohol, and put out to dry at a temperature of 35°. When the alcohol is evaporated there is as a residue a brown crust, which can be easily pulverized. The action of this product, which Dr. Buys has had in possession for a year and a half, has been studied on a myxœdematous patient, of whose case the writer gives the following *résumé*:—

The subject, a patient fifty-nine years of age, had been cured of a classical myxœdema, of three years' duration, by means of glycerine extract of sheep's thyroid administered by the mouth. [Dr. Buys has published the case in the "Journal de Médecine de Bruxelles," 24th June, 1893.] Her state of health had become completely normal, but it seemed to depend upon the daily use of small doses of thyroid juice, for if for one or two days the administration of the remedy was left off, a series of nervous troubles reappeared, recalling those which had characterized the previous state of the patient. At a given moment (the 30th May, 1893), Dr. Buys substituted his new preparation for the glycerine extract. The medicament, mixed with a little sugar of milk, was given in a daily dose of five centigrammes in a cachet. Nothing abnormal was observed. Her health remained perfect until the end of July, at which period, owing to circumstances over which the physician had no control, the patient was left without the remedy for eight days. Myxœdema reappeared with all its features, though in a less degree than at first it is true, but with sufficient distinctness to prevent any doubt as to diagnosis. The hard œdema had reappeared, and showed itself particularly in the face, where the features became thick and immovable, the skin was dry and cold, she presented a washy aspect; the pulse was feeble, regular, sixty-four to the minute, the extremities were cold, there was scantiness of urine, which contained neither albumen nor any other abnormal element.

As regards the nervous system, there was noticed great slowness in the accomplishment of cerebral functions, apathy and asthenia. The pulverized extract was prescribed in a triple dose, fifteen centigrammes three times, and again, as had been noted the first time with the glycerine extract, the effects were rapid and remarkable. The first phenomenon was an abundant diuresis, and very soon the hard œdema, the changes in the skin, the slowness and feebleness of the pulse, the abnormal nervous symptoms, all had disappeared. At the end of a few days there was no further trace of the disease, and from this moment her health has kept continually excellent, thanks to the persistent use of five centigrammes of the remedy daily. The writer has had occasion to notice, a few days after a complete disappearance of myxœdema, a certain amount of tachycardia and of nervous excitability. The patient at this time still takes fifteen centigrammes of powder, and it was to the administration of this large dose, continued beyond the necessary period, that we must attribute the phenomenon observed. This disappeared as soon as the dose was reduced to five centigrammes. This observation appears to Dr. Buys to show clearly the anti-myxœdematous power of the substance extracted by him from the thyroid body. He has not endeavoured to determine the physical and chemical properties of this extract because it is no doubt a very complex product in which many bodies physiologically inactive are associated with the specific principle.

From the practical point of view this powder presents appreciable advantages. It keeps well, is easily administered, does not upset the stomach, and probably permits of a more exact dosage of the thyroid principle than the glycerine solution. Dr. Buys declares that the special object of his contribution is to establish a point of doctrine, and to show that the anti-myxœdematous principle is a substance soluble in glycerine precipitated by alcohol, and which undergoes no distinctive change during this double operation. He quotes some recent observations of Vermehren, of Copenhagen, which have a signification identical with his, inasmuch as this author has employed with success in the treatment of myxœdema a thyroid extract obtained by a process consisting essentially, like his own, in precipitating by alcohol substances which are dissolved in glycerine. This new property of the thyroid principle, to which the writer calls attention, ought to be kept in view, with its power of resisting the action of gastric juice, which has now been demonstrated clinically. It is by noting such facts as these, and in according them their due value, that we are able to make safe progress in the study of this mysterious active principle which protects the organism from myxœdema.

Dr. HICGUET (Brussels). *An Instrument for Extracting Foreign Bodies from the Nasal Fossa.*

Dr. BUYS exhibited in the name of Dr. Hicguet an instrument intended to facilitate the extraction of foreign bodies from the nasal fossa. Ordinarily the extraction of foreign bodies presents very little difficulty. A curved probe in the shape of a hook suffices. Still, at other times, on account of the duration of their sojourn, or of the inflammation

which they have provoked, or the nature or the form of the place which they occupy in the nasal fossa, the surgeon is unable to remove them except with extreme difficulty, and it is for these cases that Dr. Hicquet has had prepared a kind of forceps. This instrument has the form of a bent forceps, the branches of which are unequal. The upper one is the longer, and is gently curved, being intended to be placed on the superior surface of the foreign body; the inferior is shorter and straight, and is placed against the object. When we close the forceps the upper branch draws the body forward and fixes it against the inferior branch, of which the extremity presents a little notch. The foreign body is thus securely fixed and can be extracted easily. The joint of the forceps is composed of a pivot belonging to the upper branch, and the lower one presents three notches intended to receive the pivot. This permits of lengthening the inferior branch at will, according to the size of the object.

Dr. Hicquet is having a similar instrument made of smaller size for the extraction of foreign bodies from the ear.

Dr. SCHLEICHER. *A Case of Cure of acquired Deaf-Mutism.*

This was a girl, aged seven. The deafness, which was followed by absolute deaf-mutism, came on at the age of three years, and in less than three months. The affection lasted three years, and after that the hearing returned slowly. She is absolutely normal at present, although the comprehension of language is still very elementary, and although she continued her residence in the asylum for deaf-mutes, where she had been placed. There are no antecedents, and no hereditary taint.

Dr. SCHLEICHER criticized the enthusiasm at present expressed with regard to *Stacke's Operation*, and showed several cases of chronic osseous affection of the ear, all cured by means of operative interference of a much less radical nature.

1. A man, aged thirty, who had been affected with caries and with cholesteatoma on the left side, whose mastoid antrum was opened on the 30th September, 1893, through the auditory meatus on account of the projection of the transverse sinus. There was neither resection of the anterior wall of the attic nor extirpation of the remains of the tympanum and ossicles. The ear, which since childhood had been the seat of a continuous running, has since then remained perfectly dry. The antrum has become completely epidermized, and the cholesteatoma has shown no signs of recurrence for six months.

2. A workman, aged thirty-six, having similarly suffered from severe phenomena owing to the retention of cholesteatomatous masses, was submitted to simple curettage of the cavity created by the epidermized formation (the cavity was almost of the size of a large nut), in order to put an end to the morbid process. Operated on, on July 16th, 1893; cured at the end of a month. The individual, whose mastoid cavity presents at the present moment normal epidermis, has had no sign either of epithelial desquamation or of suppuration.

3 and 4. Two girls, one of whom was aged seven, trephined by the old method on the 5th April, 1894, on account of chronic caries of

the antrum, the fistula being kept open and having shown no trace of suppuration for eight months. The other, aged fifteen, manifestly tuberculous, operated on by the same process for chronic caries of the antrum with necrosis of the posterior wall of the meatus, and whose tympanum since then has remained perfectly dry.

The writer then showed a boy of ten years, who underwent on the 13th October, 1893, Stacke's operation, after having first gone through resection of the tympanum and ossicles. Although the operation was perfectly indicated (caries and cholesteatoma of the antrum, caries of the aditus and of the attic), and although the epidermization of these cavities appears at present fairly perfect, there is still seen from time to time small granulations and a slight discharge of pus. On account of severe pains the plugging could not be carried on for more than two months.

Dr. SCHLEICHER showed a man, aged forty, who was affected at the commencement of April, 1893, with a very circumscribed *Labyrinthitis*, which came on in the course of a chronic suppurative median otitis. From the day of the occurrence to the next day there appeared without fever, without sickness, without noises in the ear, without loss of hearing, certain severe disturbances of equilibrium, which, although now much less marked, still persist. It is therefore probable that there was a perforation of the external semicircular canal.

Dr. SCHLEICHER showed a case of *Pre-Auricular Epithelioma* in a lad seventeen years of age. Ulceration with punched out edges situated below the tragus measuring several centimètres, and of which the origin dated about fifteen years back.

Lastly, two cases of *Laryngeal Stenosis treated by Intubation*, of which the one was in a child who had worn a canula for six years continuously on account of diphtheritic necrosis. Intubation dilated the larynx sufficiently for the child to be able to breathe and to speak without the canula, although the operative occlusion of the fistula cannot yet be attempted.

Exhibition of Instruments.

1. A standard lamp for gas and oxy-hydrogen light, permitting of the alternate use of one or the other mode of lighting.
2. A lamp for transillumination of the maxillary sinus, mounted on a handle, with an interrupter.
3. A laryngeal curette, with a flexible copper handle.
4. An appliance for changing pharyngeal into laryngeal sprays.
5. Modification of Gottstein's cutting hook for dissection of tonsils.
6. A curved curette and a curved bistoury for the tonsils.
7. Burr heads for opening the maxillary sinus.

Pathological Specimens.

1. A naso-pharyngeal mucous polypus of enormous size in a child aged fifteen.
2. A large bone which had lain in the larynx of a boy for seven weeks.
3. An abscess of the left hemisphere occupying the inter-parietal furrow consecutive to caries of the roof of the tympanum.

Dundas Grant (Trans.).

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.

Meeting, Friday, November 2nd, 1894.

Dr. BANNING, President, in the Chair.

The exceptional number of 93 Members and Visitors were present.

DIPHTHERIA.

A discussion was opened by Dr. CAMPBELL POPE in an exhaustive paper on the etiology, pathology, and treatment of the disease. With regard to the etiology, he raised the following questions: (1) What is the character of localities where the disease is endemic? (2) Under what circumstances does it become epidemic in these places? (3) And how is it carried to other localities? In answer to the first, he states that insanitary conditions, malnutrition, and a moist atmosphere cause the disease to become endemic, and he quotes as an example, from his own practice, a school built on marshy ground surrounded by poor dwellings, where the disease is very prevalent. The importation of a case of diphtheria, together with an insanitary condition of the drainage, is the way in which the disease becomes epidemic in such localities.

Under the third head, he places milk as the most usual vehicle for the transmission of the disease, but also considers that infection may occur by other articles of food such as groceries, and also by means of the domestic animals.

Under the head of diagnosis he emphasizes the importance of careful clinical examination of the cases, and, although not considering cases where the membrane is limited to the tonsils as necessarily diphtheritic, the presence of membrane beyond the tonsils is, in his opinion, pathognomonic of diphtheria. Pyrexia is of doubtful value, but albuminuria, intense prostration, and subsequent paralysis are important diagnostic agents.

After alluding to the varying severity of different epidemics, he described eight different forms of diphtheria which present more or less distinct clinical characters. He concluded with a *résumé* of the statistics of the disease, and referred to the published reports of cases treated by antitoxic serum.

Dr. HOOD: The admirable paper just read by Dr. Pope deals so comprehensively with the matter under discussion that I have not much to add. My friend Dr. Elliot, with no little time and labour, has collated for me the results of our treatment of diphtheria at the West London Hospital. I will very briefly allude to these cases.

During the past ten years two hundred cases of diphtheria have been treated at the hospital, the mortality being 34·3 per cent. Of these cases, one hundred and twenty-six were children under seven years of age. There were sixty-five deaths. Over seven years of age, and under eleven,

there have been seventy-two patients under treatment, with only three deaths. These figures bring out in a very marked degree the danger of the disease in early infant life.

At the moment we are all intensely concerned and interested with regard to the new cure for diphtheria, and before passing our judgment upon the value of "antitoxin" it is absolutely necessary to consider carefully our present position in relation to the usual mortality, apart from the specific treatment.

Diphtheria is practically a modern disease, although authorities tell us it has been recognized for ages. Still, when we examine the records of one of the best clinical observers of the early part of the century, Sir Thomas Watson, we find no mention of the disease. In the first edition of Watson's lectures (1837) there is no reference to diphtheria. Six years later, in the fourth edition, in a paragraph, he alludes to *diphtheritis*, an affection "more common in some parts of France than in this country . . . a formidable complaint, generally proving fatal from extension of the disease to the air-passages." Hence I say, diphtheria may be looked upon as a disease which has only assumed prominence in this country during our own time.

I believe there is no disease which assumes such varieties of type. We meet with it under every grade of intensity. The most malignant form may have but a shred of membrane. A throat covered with membrane may be accompanied with scarcely a grave symptom.

I believe that it is not possible from mere naked eye appearance alone to make a certain diagnosis of the disease. Statistics will enforce the fact of the extreme variation in the type of diphtheria. Thus I find at the West London Hospital, taking the mortality year by year, there is a difference of from thirty to forty per cent. between individual years.

This difference of type has an important bearing upon the value of "antitoxin," and, assuming that we had made use of "antitoxin" in our two hundred cases treated in the West London Hospital, type and age would require most careful adjustment before permitting any logical deduction as to the value of that remedy.

I do not wish that this remark should be taken in any sense as opposing the use of "antitoxin." I am a firm believer in the power of this potent agent, but we are more likely to obtain real and lasting good by approaching the subject in a calm judicial spirit than by blindly accepting evidence only too hastily gathered together.

A study of both the clinical features and the essential pathology of the disease will, I think, teach us that with diphtheria we are dealing with an organism like those far higher in the animal scale, endowed with that wonderful power of variation—variation due not only to changes of the organism itself, but vastly influenced by the receptivity of the soil upon which it may chance to fall.

Dr. D. DREWITT believed that we cannot exaggerate the importance of *pure fresh air, free ventilation, and light, in the prevention and treatment of all infectious fevers, especially of diphtheria.*

Some years ago there was an epidemic of diphtheria in Bloomsbury, and within two years some eighty cases were brought to the hospital.

They were removed, as a rule, from the diphtheria ward to the general wards within two days of the disappearance of the membrane, but no doubt with the diphtheria bacillus still on their fauces. The wards were large and well ventilated, and in no instance did the disease spread. In a few weeks, however, owing to the hospital being enveloped in clouds of dust from some houses which were being pulled down, *all windows and ventilators were shut*, and then diphtheria appeared in every ward of the hospital—in all, twelve cases of diphtheria, besides five of tonsillitis and three of scarlatina.

At the London Fever Hospital I am informed that, some time ago, almost the same thing occurred. When the windows of the scarlatina ward were closed late scarlatinal throats, nephritis, and some cases of diphtheria appeared. When the windows were opened they disappeared, and this in spite of defective drains.

In all our hospitals (possibly in most of our public buildings) diphtheria bacilli exist, scattered, harmless, and disappearing as long as there is free ventilation and no overcrowding, but liable to become dangerous when these precautions are neglected. Badly-ventilated schools and churches are both of them liable to spread the disease.

Our workhouse authorities happily recognize the importance of the fresh air treatment, for while allowing only 600 cubic feet of air to each patient in the ordinary sick ward, they allow each diphtheria patient 2000 cubic feet, and, I believe, in the plans for future hospitals each patient is to have 195 square feet of floor, and the enormous volume of 2250 cubic feet of air to himself, for with this abundant air space not only is the patient more likely to recover, but he is less a source of danger to others.

Dr. NORRIS WOLFENDEN thought that the efforts of the Society could not be directed to a better end than in emphasizing measures for the prevention of diphtheria. It is not the typical cases of diphtheria that present great difficulties of diagnosis, but that larger number of cases of obscure throat affections and catarrhs, such as the numerous varieties of tonsillitis, which we so commonly meet with and which are, many of them, liable to be carriers of diphtheritic infection, and the true nature of which is apt to be overlooked by even the most careful practitioner. A diagnosis by bacteriology is the only absolutely correct one, and it is essential that this should be performed for the sake of the patient, the practitioner, and for the better means of isolation, disinfection, and prevention of the spread of the disease. For whatever we may in future learn as to the treatment of this disorder, there can be no question that prevention is of the first importance. Accurate diagnosis is the first step towards this end, and this must be bacteriological. The general practitioner cannot be expected to do this, and the efforts of this Society cannot be directed to a better end than by presenting to the Local Government Board a memorial and pressing it home by every means in its power, to get the adoption of a system such as is now in successful practice in New York, and which consists of a central bacteriological station with properly qualified bacteriologists, and depôts throughout the city where culture tubes can be obtained free of cost by the practitioner.

with full directions how to use them. These are returned to the bacteriological station, and a report as to the nature of the case is delivered to the practitioner within twelve hours. No case, found to be diphtheritic, and in which the Klebs-Loeffler bacillus is found in the cultures, is allowed to go free until successive cultures during convalescence have determined that these bacilli have entirely disappeared from the throats of the patients. It is these obscure cases of throat affection, in which the clinical symptoms are slight, but in which there is often the typical bacillus, which, allowed to circulate among the population (School Board schools, etc.), carry the infection right and left, and many of which are extremely virulent.

There is only one true test of diphtheria, viz., the characteristic bacillus, for membrane signifies nothing more than intensity of the local process of inflammation, and typically diphtheritic membranes may be produced by a variety of causes—caustics, the streptococcus, staphylococcus, pneumococcus, etc. Temperature, albuminuria, glandular enlargement, even “post-diphtheritic paralysis,” are not characteristic of diphtheria. We are well on the way to distinguish clinically such forms of “pseudo-diphtheritic” throat as the streptococcal, the staphylococcal, the pneumococcal, etc., all non-diphtheritic, but many of which would unhesitatingly be described as such clinically. Indeed the returns of the Health Department of New York have shown that of 5611 cases of suspected diphtheria examined in the twelve months ending May, 1894, 1540 were definitely proved not to be diphtheria, and 816 were doubtful—i.e., about sixty per cent. of reported cases only were diphtheria, and forty per cent. were not; and these returns agree with those from Paris and Berlin in establishing the fact that a large proportion of suspected cases returned as diphtheria are not so. In the interests of accurate statistical returns bacteriological diagnosis is important, and how much more as a means of preventing the spread of the disease.

The establishment of such stations in London would also be productive of scientific results of the greatest importance, besides assisting the general practitioner, whose loyal co-operation may be counted on in London as in New York, and who need feel no shame at having to rely upon the bacteriologist for a diagnosis in one of those obscure forms of disease which constantly puzzle even the most intelligent clinicians. A full description of the methods adopted in New York will be found in a paper by the director of the laboratory published in the *JOURNAL OF LARYNGOLOGY*, September, 1894, and a lengthy report of the experience of the first year's working by Drs. Park and Beebe, the bacteriologists, is published in the same *Journal* for November, 1894. In July, following upon a paper read by the speaker upon *The Nature of so-called Follicular Tonsillitis, and its Relation to Infectious Diseases*, at the British Laryngological Association (published in the *JOURNAL OF LARYNGOLOGY*, August, 1894), a resolution was agreed upon by that Association, and subsequently presented to the Local Government Board, emphasizing the necessity of adopting in this country some such system as is in practice in New York, and the speaker hopes that, before this important discussion terminates, the West London Medico-Chirurgical Society will see its way to support

this memorial by a similar one, and, by its powerful influence, help to bring home to the Government Department the advantages and the urgent necessity for establishing bacteriological stations for the better diagnosis of diphtheritic disorders as the first step towards better preventive measures and methods of isolation and treatment. The speaker concluded with a hope that the West London Medico-Chirurgical Society might be induced to establish such a station of their own in the west end of London, and thus become active pioneers in the good work.

Dr. A. SYMONS ECCLES: I will not intrude on the interesting clinical and pathological domain which this discussion has traversed for any great space of time, but I think and hope that I may be the mouthpiece of this meeting, rather than the voice of one crying in the wilderness of apathy, if I venture to suggest that there should be a practical and tangible outcome from this debate. There are certain conditions arising out of the notification of disease, by the medical adviser of the patient, to the sanitary authority, which make it difficult both in the interest of the patient and the community to insure rapid isolation and treatment of infectious disease.

1st. There may be, and frequently is, too great eagerness to notify.

2nd. There may be too great reticence.

3rd. The medical officer of health may object to what he may regard as too great readiness to notify.

4th. The medical officer of health may be too keen to ferret out foci of infection in order to avoid epidemics, and thus reproach the medical practitioner for non-compliance with the Act.

To obviate these well-known difficulties I look forward to the establishment of State clinical laboratories, and as a step in this direction I beg to propose a resolution to this effect:—

Coming from this Society of general practitioners it may prove even more effectual than one already passed by the British Laryngological Association, as, in this case, we are not merely specialists, experts always alarmists, and anxious for scientific progress only, but men whose relations with the public make them desirous only for the common weal.

Dr. JACKSON, in seconding the motion, referred to the influence of sewer gas in preparing a suitable nidus in the throat for the development of diphtheria. He condemned the action of the vestries in allowing the ventilation of the sewers into the roadways, and pointed out that this was directly contravening the Act.

Dr. ATKINSON raised an objection to the resolution on the ground that it would increase the work of the parish doctors.

Dr. ALDERSON gave some of the results of his personal experience in the treatment of the disease.

Mr. LENNOX BROWNE agreed heartily with the resolution. He considered that the amount of membrane in any case was the essential factor in producing a fatal result. In the event of the antitoxic treatment proving of value he urged the importance of not neglecting local and dietetic treatment.

Dr. SEYMOUR TAYLOR: Diphtheria must not only be considered a local disease—it is essentially a grave constitutional disorder. It is entirely

begging the question to look upon it as a malady which kills by its local processes only. It will be found in the majority of cases that death in diphtheria has been brought about by pure asthenia, and not by suffocation.

As regards causation, I hold that no bacillary infection will ensue unless the nidus be prepared: in other words, it is necessary that the victim of the disease must be in ailing health, and hence that the fauces must be previously prepared, as it were, either by some form of tonsillitis or other catarrhal affection, before there will be a cultivation of Loeffler's bacillus.

This leads up to an important point in treatment. The constitutional symptoms require a generous and stimulating dietary. Further, as showing the grave state of the patient, tracheotomy is to be discountenanced in all children under one year of age, as it is seldom successful.

As regards local treatment, Dr. Taylor advocated the free swabbing of the throat with a saturated solution of salicylate of soda.

The further discussion was adjourned to a special meeting of the Society to be held on November 16th. R. Lake.

ABSTRACTS.

DIPHTHERIA, &C.

Oertel (München).—*Scheme of a General Official Research as to the Causes of Epidemic Diphtheria.* "Internat. Klin. Rundschau," 1894, No. 34.

CONCERNING the proposition of an inquiry upon the causes of diphtheria at the eighth international congress of hygiene and demography in Budapesth, the author proposes researches (1) on the bacteriology of the disease, (2) on its epidemiology and hygiene, consisting in official researches upon the influence of climate, on individual, local and social causes producing increase of virulence and leading to the propagation of diphtheria; a scheme of a paper of questions on each case to be filled by physicians, and a report on the hygienic methods necessary to diminish the spread of the disease. Michael.

Kohn.—*On School Hygiene and Diphtheria.* Gesellschaft der Aerzte in Wien, Meeting Mar. 25, 1894.

If only one child is affected in the school it is recommended that the others shall not visit the school during fourteen days; if more than one case arise, the school should be closed and disinfected. All the children should use, as a prophylactic, inhalations of potash permanganate. Michael.

Escherich (Graz).—*Pathogenesis of Diphtheria*. "Wiener Klin. Woch.," 1894, No. 22.

THE author concludes : For the origination of diphtheria, over and above the presence of the bacilli, it is necessary that there should be a specific receptivity of the tissue. The condition, both local and general, is of influence, as well as the virulence of the bacillus. Other saprophytic bacteria and their products may also have an influence upon the spread and the clinical nature of the process. The cure is to be effected by obtaining immunity of the diseased organism, so that the predisposition is prevented or is transformed into the contrary. *Michael.*

Roth (Strasburg).—*Bacteriological and Clinical Diagnosis and Treatment of Diphtheria*. "Jahrbuch für Kinderheilk.," Band 28, Heft 1.

DETAILED review of the bacteriology of diphtheria without bringing forward anything new. The author reports on twenty-five cases bacteriologically examined, and gives a report on the results of the hospital. For treatment, carbol-papayotin and liquor ferri are employed. Of one hundred and twelve tracheotomized cases, fifty-nine (fifty-three per cent.) were cured. Of one hundred and twenty-one not operated upon, ninety (seventy-four per cent.) were cured. *Michael.*

Abel (Greifswald).—*Case of Wound Diphtheria with Loeffler's Bacilli*. "Deutsche Med. Woch.," 1894, No. 24.

IN an infected wound of a finger the author has found the characteristic bacilli. The child ten days previously had had diphtheria of the tonsils. *Michael.*

Variot, G.—*Epidemic of Diphtheria in a little town in Burgundy*. "Journal de Clinique et Therap. Infantiles," July 19, 1894.

RELATION of a grave epidemic of diphtheria in Chagny, a town in Burgundy. Of four thousand five hundred inhabitants, there were seven hundred cases of this disease, with sixty deaths. The greatest number of cases occurred in young subjects from one to twelve years of age. The toxic form has been frequent. *A. Cartaz.*

Bonnier, Madam P.—*Necessity of Bacteriological Examination for the Diagnosis of Diphtheritic Anginas*. Thèse de Paris, 1894.

THE authoress studies the various symptoms of anginas with pseudo-membranes, and proves that temperature, colouration of the mucous membrane, adenopathy, etc., are without specific value in the diagnosis of diphtheria. Only bacteriological examination gives a real diagnosis. It is necessary to make cultures and histological examination in each case of suspected angina. *A. Cartaz.*

Donath.—*Diphtheritic Hemiplegia*. "Neurolog. Centralblatt," 1893.

REPORT of a case.

Michael.

Nikitin (St. Petersburg).—*Case of Fibrinous Laryngo-Tracheitis of Diphtheritic Nature*.

THE only remarkable feature of the case was that the disease did not

attack the pharynx and the tonsils, but only the larynx and the trachea. Dr. Pewsner, who performed the bacteriological examination, found Loeffler's bacilli in the membranes. *Michael.*

Nesemann.—*Treatment of Diphtheria.* "Aerzte Praktiker," 1893.

NOTHING new.

Michael.

Gateau and Hulot.—*Treatment of Diphtheritic Angina by Solution of Sublimate in Glycerine.* "Archives Gen. de Med.," Sept., 1894.

THE authors relate cases treated by that procedure; painting the parts of the fauces invaded by false membranes with a solution of bichloride of mercury in glycerine of one to twenty. These paintings were done twice a day, and three or four times in grave cases. At the same time, before the paintings, thorough nasal and buccal irrigations with bone solution were performed. Of sixty-four cases so treated, they have had sixty-one cures; yet twenty-five of these anginas were severe and toxic.

A. Cartaz.

Villière.—*Treatment of Diphtheritic Angina by Mercurial Spray.* "Journ. de Clin. et Therap. Infantiles," Sep. 20., 1894.

THE author has treated ninety-eight cases of diphtheria, fifty-two of laryngitis, and forty-six of angina, by a spray of solution of sublimate (one in five hundred) used twice or more a day. Never has he observed symptoms of mercurial intoxication. Of ninety-eight cases, he has had ninety-six cures.

A. Cartaz.

Moizard.—*Treatment of Diphtheritic Angina with Bichloride of Mercury in Solution in Glycerine.*

THE author has treated by that method one hundred and twelve cases of diphtheritic angina, with eighteen deaths and ninety-four cures. The sublimate is employed in solution (one in twenty or one in thirty) in pure glycerine. With little cotton tampons, soaked in that solution, he paints twice or three times a day the diphtheritic patches. It is necessary to absorb with pure cotton the excess of solution, so as to prevent toxic action of the mercurial salt. He employs at the same time antiseptic washings of the mouth and nose, and general tonic treatment.

A. Cartaz.

Le Gendre, Arsène.—*Treatment of Diphtheria by a Solution of Sublimate in Glycerine.* Thèse de Paris, 1894.

THE author uses a solution of bichloride of mercury in glycerine, from one in thirty to one in twenty. After washing the fauces with antiseptic liquids, he applies the mercurial solution with a cotton tampon in the parts infected, two or three times a day. In forty-two cases of diphtheria, including twenty-three cases with intense infection, he has obtained twenty-nine cures.

A. Cartaz.

Lerassort.—*Diphtheria and Petroleum.* "Normandie Med.," Oct. 1, 1894.

RELATION of a case of severe diphtheritic angina cured by painting the fauces with petroleum oil.

A. Cartaz.

Canon (Berlin).—*Diphtheria Treatment by "Heilserum."* "Deutsche Med. Woch.," 1894, No. 23.

REPORT on experiments made in the Moabit Hospital during the last year. In June, 1893, fifteen children were treated; two of these died. Seven were tracheotomized, all of whom were cured. From December, 1893, to March, 1894, forty-four cases were treated with serum, with thirty-three (seventy-five per cent.) cures. Of thirteen tracheotomized cases, nine (sixty-two per cent.) were cured; of sixty-six children with diphtheria treated without serum, forty-six (seventy per cent.) were cured; and of thirty-five tracheotomized, twenty-two (sixty-three per cent.) were cured. The results are nearly the same. *Michael.*

Behring (Berlin).—*Further Remarks on the Cure of Diphtheria.* "Deutsche Med. Woch.," 1894, No. 32.

POLEMICAL article concerning the diphtheria serum. *Michael.*

Strahlmann. — *The Diphtheria Serum of Behring-Ehrlich.* "Allg. Med. Centralzeitung," 1894, No. 58.

THE author has applied the medicament in forty-eight cases with good results. Only three cases have died. It was also applied in ninety-four cases as a prophylactic against diphtheria. Some of them get the disease some weeks later. *Michael.*

Wernicke (Berlin).—*Experimental Contribution to the Knowledge of Loeffler's Diphtheria Bacillus and the Blood-serum Treatment.* "Archiv für Hygiene," 1893.

DOGS are very receptive to the bacilli. There is a great difference between them and guinea-pigs. By feeding with the meat of an immunized sheep it was possible to produce a certain degree of immunity in dogs. This immunity increased with the quantity of immunizing material given to the sheep. By feeding with meat of sheep dead of diphtheria immunity could also be produced. Experiments with dog-serum in diphtheritic human subjects gave encouraging results.

Michael.

Buchner (München). — *Notice on Diphtheritic Antitoxin Preparations.* "Münchener Med. Woch.," 1894, No. 33.

POLEMICAL article concerning Behring's diphtheria serum. *Michael.*

Raubitschek (Carolinenthal).—*New Treatment of Whooping Cough.* "Therap. Monats.," 1894, No. 4.

THE author recommends brushing the pharynx with a one per cent solution of sublimate. *Michael.*

MOUTH, TONSILS, PHARYNX.

Hefelmann (Dresden).—*On the Effect of Mouth Waters upon the Substance of the Teeth.* "Deutsche Med. Zeitung," 1894, No. 47.

RECOMMENDATION of odol.

Michael.

Bergmann (Worms).—*Waters for Gargling.* "Deutsche Med. Zeitung," 1894, No. 64.

RECOMMENDATION of the "Kaupastillan" (see the report in this Journal).

Michael.

Rolleston (London).—*Carcinoma of the Mouth.* "Brit. Med. Journ.," May 5, 1894.

FOR the upper inch and a half the trachea and œsophagus were surrounded by a dense contracting growth, which necessitated tracheotomy and gastrostomy. The thyroid was involved. After death no primary disease was found in the trachea or œsophagus, nor did the disease arise in the thyroid gland; whether in a branchial cleft or an accessory thyroid, the author could not say. He did not consider it was situated in the lymphatic glands. Shattock had seen such cases, and thought that in some of them the secondary disease arose without a primary lesion. As Butlin thinks, the primary lesion might have become abortive.

Wm. Robertson.

Chiari.—*Hard Tumour on the Dorsum of the Tongue.* Gesellschaft der Aerzte in Wien. Meeting, June 15, 1894.

THE author exhibited a patient, forty-eight years old. The tumour was removed by the galvano-cautery, and examination proved it to be of a fibrous nature. Cure followed.

Michael.

Rosenthal (Berlin).—*Contribution to the Bullous (Blasenbildend) Affections of the Mouth.* "Deutsche Med. Woch.," 1894, No. 26.

THE author has observed three such cases. Three men, aged about thirty, had a disorder of the mouth, manifested by blisters, which arose on the mucous membrane of the tongue, the lips, the palate, and the pharynx. At the same time there were vesicles on the genitals, having a cyanotic appearance, with a red areola. The disease was erythema bullosum, with localization in the mouth. The attacks occurred in all cases in spring and at harvest time. The author concludes that local pemphigus of the mucous membrane of the mouth is an erythema bullosum, a special form of erythema multiforma. Characteristic is the tendency to recurrence.

Michael.

Fraenkel, E. (Hamburg).—*On the so-called Bednar's Aphthæ.* "Jahrbuch des Hamburgischer Staatskrankenhause, Jahrgang 1892-93." Hamburg: Leopold Voss. 1894.

THE most important symptom of Bednar's aphthæ is localization over two symmetrical parts of the hard palate. The affection is benign, and only

local. It is only observed in the new-born. It has no etiological relation to the little vesicles sometimes found in the region of the raphé of the hard palate. Anatomical examination of the mucous membrane shows that there is no difference in the thickness between the parts of the mucous membrane in which the aphthæ are localized and the other parts. Also *in vivo* neither by extreme distension of the jaws nor by other movements is the mobility of this part of the mucous membrane produced. The histological examination of four specimens of the disease shows that the affection begins with the entrance of bacteria between the epithelium, and then follows an elevation of the epithelium. In the vacuum so produced there often develops a serous exudation, and sometimes laceration of the mucous membrane. The author believes that careful cleansing is the best treatment. *Michael.*

Colley, U. Davis (London).—*An Operation for the Cure of Cleft of the Hard and Soft Palate.* "Brit. Med. Journ.," April 28, 1894.

IN this operation the tissues at the margins of the fissure on each side, of some breadth, are freed and brought together throughout their length by silk sutures, thus forming a bridge over the fissure, with a mucous surface superiorly and a raw inferior surface. The remaining mucoperiosteum is slid inwards to form another bridging flap inferior to the above, with an inferior mucous surface and an upper raw. The tongue tends to press these two flaps into contact. One lateral incision is made to prevent tension. No tissue is sacrificed, but the number of sutures is larger than in other operations. In each of the six cases four-fifths of the cleft was covered. Mr. Durham referred to the value of moving a flap from one side to attach it to the other. Mr. Morgan anticipated failure from food and saliva getting between the two flaps.

Wm. Robertson.

Lange (München).—*Multiple Papilloma of the Tonsil, Tongue and Epiglottis.* Contribution to the Development of Inflammatory Papillomata. Arbeiten aus der Münchener Klin. Institut, 1893.

DESCRIPTION of the result of an exact histological examination of the tumours. *Michael.*

Du Castel.—*Syphilitic Sore of the Tonsil.* "Journal de Praticiens," Aug. 17, 1894.

A GENERAL review, with two original cases.

A. Cartaz.

Gouguenheim and Ripault.—*Peritonsillar Abscess.* "Bull. Soc. Med. des Hôp.," July 19, 1894.

RELATION of five cases of peritonsillar phlegmonous abscess, with a description of the symptoms and indication for treatment. *A. Cartaz.*

Marion.—*The Affections of the Lingual Tonsil, and especially Lingual Acute Tonsillitis.* Thèse de Paris, 1894.

RESUMÉ of the contributions upon that subject, containing two original cases. *A. Cartaz.*

Veillon.—*Researches on the Etiology and Pathogeny of Acute Non-Diphtheritic Angina.* Thèse de Paris, 1894.

IN the various forms of angina (catarrhal, phlegmonous, and pseudo-membranous) there are found the same microbes, specially the pyogenes streptococcus (twenty-four times out of twenty-four cases), the pneumococcus, and the staphylococcus. The streptococcus is the most virulent, and the principal factor of these inflammations. The variety of anginas is the result of the different localization of the microbe and the degree of virulence exhibited. The streptococcus of angina is similar to the microbe of erysipelas and of suppuration. *A. Cartaz.*

Herzberg.—*Angina Tonsillaris in Children.* Inaugural Dissertation. Dorpat, 1893.

NOTHING new.

Michael.

Wolberg (Warschau).—*Clinical Contribution to the Etiology and Incubation Period of Angina Follicularis in Children.* "Archiv für Kinderheilk.," Band 17, Heft 3 and 4.

THE disease is contagious, and the time of incubation is from three to four days. This great fact the author has established by the observation of two children, who both had the disease—one four days later than the other (!). *Michael.*

Myles (Ireland).—*Perforating Wound of Pharynx.* "Brit. Med. Journ.," May 26, 1894.

THE author referred to a case in a man who came to hospital complaining that he had swallowed a fish bone. He was able to swallow fluids but not solids. No probang was passed. Five or six days afterwards he became feverish and shortly died. A small fish bone was found to have perforated the pharynx, and also the trachea. A mediastinal abscess had formed, and the patient had in addition purulent pneumonia. *Wm. Robertson.*

Engelhardt (Bonn).—*Pharyngeal Reflexes in Normal and Hysterical Persons.* Inaugural Dissertation. Bonn, 1893.

THE author's researches gave uncertain results, so that the existence or non-existence of the reflex has no diagnostic value. *Michael.*

Courmont.—*Pharyngeal Spasm in Locomotor Ataxy.* "Rev. de Med.," Sep., 1894.

Magnan.—*Pharyngeal Symptoms in Tabes.* Thèse de Lyon, 1894.

COURMONT relates the case of a man of sixty-two years of age tabetic for twenty years, with no history of syphilis. Without reason he had an attack of pharyngeal tonic spasm, which prevented the introduction of food or drink. There was no laryngeal or œsophageal spasm. The muscles of the posterior and lateral part of the pharynx were alike tetanized. By the method of suspension the spasm disappeared at the first sitting, and there was no recurrence afterwards.

MAGNAN relates the same case, and anterior similar observations of Jean, Lizié, and Oppenheim, and studies the various forms of pharyngeal troubles in the tabetic. *A. Cartaz.*

Zarniko. — *Tuberculosis of the Pharynx.* Aertzlicher Verein in Hamburg. Meeting, April 17, 1894.

THE author showed a case. The affection began with an ulceration of the right tonsil in February last. Iodide of potassium was given without effect. The condition has now made progress, and the soft palate, uvula, epiglottis, epiglottic folds, and the right vocal band, have become ulcerated.

Michael.

Catti (Fiume). — *Pharyngo-Laryngeal Types of Acute Miliary Tuberculosis.* "Wiener Klin. Woch.," 1894, No. 24.

THE author proposes to call such cases of miliary tuberculosis in which the affection begins in the pharynx and larynx a pharyngo-laryngeal type analogous to the typhoid, the meningial, the broncho-pneumonic and the chronic types of the disease. The author has observed this form in two cases.

Michael.

Urcelay. — *Varices of the Esophagus.* Inaugural Dissertation. Berlin, 1893. NOTHING new.

Michael.

Hacker (Wien). — *The Treatment of Deep-seated Cicatricial Strictures of the Esophagus by application of Bougies without end after temporary Gastrostomy and Esophagotomy.* "Wiener Klin. Woch.," 1894, Nos. 25 and 26.

THE author reports some cases in which he had applied this method, originally proposed by him in his book (see the report in this Journal), with good results.

Michael.

NOSE AND NASO-PHARYNX.

Zwardemaaker. — *Olfactometry.* "Neurolog. Centralbl.," 1893, page 729.

EXPERIENCES with the method are related.

Michael.

Henshaw (Sale). — *Nasal Feeding in Cases of Painful Deglutition.* "Brit. Med. Journ.," May 19, 1894.

THE author recommends this in all painful affections of the mouth and palate. [And he might have added, of epiglottis and arytenoid regions.—*Rep.*]

Wm. Robertson.

Franke, G. (Berlin). — *Experimental Examination of Air-Pressure, Air-Movements, and Air-Changes in the Nose and its Accessory Sinuses.* "Archiv für Laryngologie und Rhinologie," 1893, Band 1, Heft 2.

THE experiments which the author carried out partly with a nasal tube, partly on a model of the nose, and partly on a specimen gave the following results. The air-pressure in the cavities of the nose is determined by (1) the absolute extent of the whole nasal cavities; (2) the relative size, *i.e.*, the difference in size between the choanae and the nasal cavity (or rather its narrowest part); (3) the position of the narrowest

part of the nasal cavity ; (4) by the strength and vigour of the respiratory movements.

An exact average expression for the air-pressure in a normal nose cannot be given, but, according to the author's experiments, in the normal nose and accessory cavities, with normal respiration, it does not exceed two to three millimètres of water pressure.

The differences in pressure, as in the nose and the accessory cavities, cannot be brought into any relation with the variation of the general air-pressure.

In order to study the air-movements in the nose, the author breathed through his nasal model alternately tobacco-smoke and air. His conclusions are as follows :—The air rises from the bridge of the nose to the roof, then arches over and downwards to the choanæ. Beneath the arch thus formed there is a column of air, which rotates from above backward and downwards. On strong respiration the arch keeps closer to the roof of the nose, while the column is large, and turns quickly. On expiration the movements are the same, but reversed in direction. At the end of inspiration the whole air contents of the nose turns in one large column, whose centre lies at the anterior inferior border of the middle turbinated. On expiration the same phenomena appear, but reversed.

No smoke entered the frontal sinus or antrum of Highmore during these experiments, but clouds of smoke entered the sphenoidal sinus. It appeared that the size of the openings between the nose and the accessory cavities, and their relation to the direction of the air streams in the nose, had great influence on the power of air to enter the cavities.

Considering the very slight exchange of air in the accessory cavities, it appears that these could be of no service either in moistening and warming the respired air or in helping the sense of smell : they are only bone cavities for lightening the skeleton. Their size and development are quite independent of respiratory phenomena. *Meyer (Kelly).*

Ladreit de la Charrière and Castex.—*Indications and Contra-Indications of Seaside Treatment of Nasal, Aural and Laryngeal Diseases.* "France Médicale," Aug. 3, 1894.

SEASIDE treatment is indicated in aural diseases, scrofulous, tuberculous, and hysterical ; prohibited in eczema of the ears. It is also excellent for various forms of rhinitis, but rarely indicated in pharyngeal and laryngeal diseases. It must be condemned for the treatment of tuberculous laryngitis. *A. Cartaz.*

Straus (Paris).—*Presence of Tubercle Bacilli in the Nasal Cavities of Healthy Subjects.* "Bull. Acad. de Med.," July 3, 1894.

THE author has found tubercle bacilli in the crusts and mucosities of the nasal fossæ in twenty-nine subjects who were pupils and nurses of the hospital. The subjects were all in good health, without signs of tuberculosis. The crusts and mucosities were removed with cotton tampons, and washed in sterilized broth (bouillon). That liquid was injected into the peritoneal cavity of guinea-pigs. Of twenty-nine animals inoculated, seven died from septicæmia and purulent peritonitis, nine from tuberculosis,

and thirteen remained in good health. He concludes that in the subjects living among tuberculous surroundings, as in the hospitals, the dust inspired is mixed with bacillary products, and may inoculate the respiratory channels, and the nasal cavities in particular. *A. Cartaz.*

Greliche.—*Infections of Nasal Origin.* Thèse de Paris, 1894.

THE author studies the various micro-organisms found in the nasal cavities, the relative immunity of some, and the prevalence of infectious complications after an inflammation of the mucous membrane. These complications appear in the eye, ear, respiratory tract, etc. They are constantly pretty serious, and it is necessary, in order to prevent them, to cure with great care the primary disease of the nose. *A. Cartaz.*

Tautil.—*Epistaxis in Old People.* Thèse de Paris, 1894.

FROM the cases related by the author, epistaxis should be frequent in old people, more in women than men (nine to two). The symptoms are similar to those of hæmorrhage in young men. The pathogenic conditions are, an atheromatous state of the vascular system, and sometimes diseases of the heart, liver, or kidneys. He has successfully employed subcutaneous injections of ergotin. *A. Cartaz.*

Vladar.—*Treatment of Rhinitis Fibrinosa with Iodoform.* "Pesther Med. Chir. Presse," 1894, No. 16.

THE author recommends cauterization with chromic acid, and after-treatment with insufflations of iodoform. *Michael.*

Chapuis.—*New Case of Syphilitic Chancre of the Nasal Mucous Membrane.* "Gaz. des Hôp.," July 19, 1894.

RELATION of a case of primary chancre of the nasal mucous membrane. The ulceration was extensive at three centimètres from the opening of the right nasal fossæ. There was a great infiltration of the adjacent tissues, with ichorous secretion. Cure was obtained by specific treatment. *A. Cartaz.*

Mendel.—*Tertiary Syphilitic Rhinitis; Necrosed Bone (Sequestrum) retained in the Nasal Cavities for Four and a half Years.* "Bull. Soc. de Laryng. de Paris," June, 1894.

THE title sufficiently indicates the case. *A. Cartaz.*

Le Bart.—*Primary Chancre of the Nose and Nasal Fossæ.* Thèse de Paris, 1894.

THE author relates all the cases of syphilitic ulcer of the nose—they are thirty-seven in number—with two personal observations. Chancre is rare. From the published statistics nasal ulcer appears in 3·7 per cent. of the extra-genital chancres. The author studies the two forms of that lesion—on the external tegument, and on the nasal mucous membrane. The symptoms and diagnosis are carefully enumerated. *A. Cartaz.*

Chiari, O. (Vienna).—*Tuberculosis of the Nasal Mucous Membrane.* "Archiv für Laryngologie und Rhinologie," 1893, Band 1, Heft 2.

AFTER going into the literature of the subject particularly, the author reports six cases that came under his own observation. The disease is

comparatively rare, since he has only seen six cases during the years 1889-93, in which he saw on an average one thousand five hundred patients per annum, and altogether there are only twenty-one cases reported.

In twelve cases one must assume auto-infection, either from sputum reaching an excoriated part of the septum, or through the lymphatics. In the other cases the infection must have come from without. In one case the infection arose from the antrum of Highmore. In eighteen cases the position of the tuberculoma was the cartilaginous septum. Generally an ulcer first appears, from whose edges there rapidly arise granulations that soon become confluent, and give rise to bleeding and stoppage of the nose.

In appearance the tuberculoma is red, covered with mucus or crusts, its surface irregular, bleeding easily, and pretty soft. Even deeper in, it is not much firmer. Subjective symptoms are discharge from the nose, crust-formation, nasal bleedings, stoppage of the nose, no pain. Later on may come breaking down of the growth, leading to perforation of the septum. The growths are to be removed by operation, but they generally return. Still prognosis *quoad vitam* is favourable. In differential diagnosis one must consider osteoma, enchondroma, spurs, myxoma, fibroma, rhinoscleroma, gumma, sarcoma, and lupus. *Meyer (Kelly).*

Bazenerge.—*Acquired Nasal Syphilis.* Thèse de Paris, 1894.

THE author studies the various manifestations of syphilis in the nasal mucous membrane, at the three ordinary periods of its evolution—primary ulcer, non-frequent; secondary manifestations, which are erythematous or ulcerous, tertiary accidents, *ozæna*, and gummatous tumours. Some original cases are quoted. *A. Cartaz.*

Fink, E. (Hamburg).—*On the Transformation of Benign into Malignant Tumours in the Antrum of Highmore.* "Archiv für Laryngol. und Rhinologie," 1893, Band 1, Heft 2.

THE author gives the complete clinical history of a case in which, according to his view, a benignant tumour of the antrum had been transformed into a malignant tumour. Some doubt, however, is thrown on this view by the facts (1) that there was always severe bleeding at each operation, (2) that the recurrent tumours were large and grew rapidly, (3) that the author had removed and examined microscopically only the superficial parts of the tumours. *Meyer (Kelly).*

Spitzer (Wien).—*Impermeability of the Nose, and its Treatment.* "Centralbl. für Therapie," 1893.

A REVIEW.

Michael.

Ziem (Danvig).—*Treatment of Deviations of the Nasal Septum.* "Monats. für Ohrenheilk.," 1894, No. 7.

RECOMMENDATION of drills and saws worked by rotation machines.

Michael.

Mettenheimer (Schwerin). — *Electrolytic Cure of an Exostosis of the Nasal Septum.* "Jahrb. für Kinderheilk.," 1893, No. 1.

THE author has removed an osseous tumour of the septum from a girl thirteen years old by this method. *Michael.*

Hamburger. — *Deviations of the Nasal Septum.* Inaugural Dissertation. Breslau, 1893.

NOTHING new.

Michael.

Sarremone. — *Malformations of the Nasal Septum.* Thèse de Paris, 1894.

GENERAL résumé.

A. Cartaz.

Beausoliel (Bordeaux). — *Congenital Osseous Occlusion of the Posterior Nares.* "Journ. de Med. Bordeaux," July 8, 1894.

IN a young girl, aged eleven years, with ozaenous coryza, the left naris was incompletely blocked by an osseous septum in the postero-superior part of the choana. In the right nasal cavity the occlusion was absolute, and the osseous septum seemed to be an appendage of the pterygoid apophysis of the sphenoid bone. Perforation of the septum was obtained with the galvano-cautery, and dilatation of the opening by a probe. Complete cure resulted.

A. Cartaz.

Moure (Bordeaux). — *Perforating Ulcer of the Nasal Septum.* "Archives Clin., Bordeaux," 1894.

THE author relates three cases of perforating ulcer of the nasal septum, with no tuberculosis or syphilis, in young subjects. The ulcer was destroyed by cutting-forceps, and has been carefully studied by Sabrazes. In the first two cases the ulcer seemed to be the result of necrobiosis of the mucous membrane, and chondritis, caused by bacteriological products. In the third case, the histological examination revealed an adenopithelioma. The patient was a young medical pupil, aged twenty years. The cure, after ablation, has been definitive.

A. Cartaz.

Estien. — *Ozaena and its Treatment.* Thèse de Paris, 1894.

THE author recommends, for the treatment of ozaena, extensive washings with microcidine (one in a thousand), and the application of silver nitrate solutions of one in twenty to one in five, or chloride of zinc solutions of one in a hundred to one in ten.

A. Cartaz.

Noquet. — *A Case of Rhinolith.* "Bull. Med. du Nord," Sept. 14, 1894.

A CASE, interesting from the long period of incarceration of a stone in the nasal fossæ, viz., thirty years.

A. Cartaz.

Didsbury, G. — *Rhinoliths.* Thèse de Paris, 1894.

THESE productions are ordinarily developed around a foreign body (stone, bean, etc.). In his case the rhinolith did not contain any portion of a foreign body, and the author thinks it was the result of inflammation of the mucous membrane, and deposit of secretions and calcareous matter. The chemical analysis gave the ordinary composition. After an *exposé* of symptoms and diagnosis the author relates forty-three cases.

A. Cartaz.

Marchand (Marburg).—*Cylindroma of the Antrum of Highmore*. "Beiträge zur Path. Anatomie von Ziegler," Band 13, Heft 3 and 4.

DESCRIPTION of the specimen of a tumour of the upper jaw from a woman twenty-eight years of age. *Michael.*

Jansen, A. (Berlin).—*Opening of the Accessory Sinuses of the Nose in Cases of Chronic Suppuration*. "Archiv für Laryngologie und Rhinologie," 1893, Band 1, Heft 2.

THE difficulty of curing empyema of the accessory sinuses of the nose arises from these facts : (1) That the walls of the sinuses are stiff and hard ; (2) that several bones are often diseased at one and the same time ; (3) that infection spreads from one sinus to the other on account of the proximity of their outlets ; (4) that these exits are unfavourably placed ; (5) that the bony walls separating the sinuses are very thin ; (6) that when the diagnosis is made wide-spread pathological changes are already present.

In empyema of the antrum of Highmore the author opens the anterior wall with hammer and chisel very freely. After removal of the granulations and pus, he keeps the opening wide for the first eight to fourteen days by means of tampons of iodoform gauze, then he uses a vulcanite obturator, which is easily put in and taken out, and so enables the patient to carry out daily washings and insufflations. He has seen the healing greatly aided by the transplantation of a piece of mucous membrane and periosteum from the alveolar process into the antrum. The position of the exit from the sinus frontalis (viz., at the lowest part of the sinus) places this sinus under more favourable circumstances. But, as in cases of empyema, this duct is generally blocked by granulations, the danger arises of the pus perforating into the orbit, the ethmoid cells, or even into the interior of the skull, and so whenever there is continuous headache along with a profuse, specially if fœtid discharge of pus, a free opening of the sinus should be made. He recommends incision beneath and parallel to the eyebrow, followed by removal of the inferior wall and scraping out of the frontal sinus. He generally found the ethmoid also affected, and therefore also opens the ethmoidal cells by removing the orbital and nasal inferior wall, having previously tamponed behind. In bilateral empyema, the sinuses are to be opened one side at a time.

Swellings in the anterior superior portion of the hiatus semilunaris and of the anterior end of the middle turbinated are important indications for diagnosis of frontal sinus empyema. Still more important is palpation of the inferior lateral wall of the sinus. Flattening of the curvature of the inner upper angle of the orbit, and tenderness on pressure there, point to empyema of the frontal sinus. In conclusion the author described seven cases of his own. *Meyer (Kelly).*

Capdepon.—*Empyema of the Maxillary Sinus*. Thèse de Paris, 1894.

IN this elaborate pamphlet the author gives a good review of the principal works upon that subject. He thinks that the suppuration is especially of dental origin, more rarely nasal. As a means of diagnosis, he advocates

exploratory puncture through the canine fossa, and as to treatment, opening of the antrum through the alveola. He waits some days before applying a tube to the perforated conduit. *A. Cartaz.*

Bauer.—*On a Case of Suppuration of the Antrum of Highmore.* Aertzlicher Localverein Nürnberg. Meeting, April 5, 1894.

A CHILD, three years old, fell upon its face and had a contusion of the maxillary region, followed by reddening and swelling. Some time later discharge of blood and pus followed from the right naris. A fluctuating point over the region of the right fossa canina was detected. An opening into the right antrum through the nose was made by Mikulicz's instrument. Treatment with iodoform gauze followed, and cure resulted. *Michael.*

Burger (Amsterdam).—*Diagnosis of Empyema of the Antrum of Highmore.* "Monats. für Ohrenheilk.," 1893, No. 11.

IN cases of rhinitis of one side there sometimes exists a suppuration of the other antrum if the pus has travelled to the opposite side during the night. *Michael.*

Sandford (London).—*Intra-Cranial Abscess arising from Caries of the Sphenoidal Cells.* "Brit. Med. Journ.," May 12, 1894.

THE abscess caused double optic neuritis and subsequent post-neuritic atrophy, with complete blindness, about twenty-seven years before the patient's death. The left half of the skull was exhibited, showing the situation of the abscess, which had penetrated the left orbit, causing proptosis, and also the outer wall of the skull by erosion of the bone. Internally, the tumour had raised the optic nerves and commissure.

Wm. Robertson.

Wunkler, E. (Bremen).—*On the Anatomy of the Inferior Wall of the Frontal Sinus.* "Archiv für Laryngologie and Rhinologie," Band 1, Heft 2.

THE author has tried in thirty-three corpses whether it is possible to trephine the sinus frontalis from the inner side of the middle turbinated. On the sixty-six sinuses the operation succeeded thirty-five times. The shape of the skull and general structure of the other bones give no indication of the size of the sinuses, or of the thickness of their bases. The length of the floor of the sinus he found was 1·5 centimètres and upwards, the breadth 0·5 to 2 centimètres. The ostium frontale lay sometimes in front, sometimes below in the middle, and sometimes behind, and it was often deepened into a cone-shape. In twenty-two cases the floor of the sinus was a firm plate 2 to 5 millimètres thick. In sixteen cases the floor above and close to the septum narium was thick, but thin as paper a little further to the side. In most cases the relations of the floor of the sinus differed on the two sides. In men scarcely one-sixth of the cases could be probed, and more than half could be trephined, whilst in women one-fourth could be probed and one-half trephined. In five cases injury to the ethmoidal cells was found after trephining.

Meyer (Kelly).

Klingel.—*Introduction of Probes into the Frontal Sinus.* Aertzlicher Verein zu Elberfeld. Meeting, June 5, 1893.

THE possibility of the introduction of probes into the frontal sinus is in relation to the individual anatomical condition. If the duct is short it is easy; if it is long and curved it is difficult, and sometimes impossible. If the probe can be introduced much more than five centimètres it may be said with certainty that the frontal sinus has been reached. The author showed a patient who had had empyema of the ethmoid bone and empyema of the frontal sinus. By irrigation of the sinus a quantity of pus was removed, and the patient was cured. In other cases the treatment *per vias naturales* does not suffice, and is only a preparatory treatment for surgical operation.

LOEWENSTEIN said that, if the introduction of the probe is not possible, it is not, as Schaeffer proposes, permissible to perforate the bone. By such manipulation the ethmoid bone or the orbital cavity, or even the skull, may be perforated. By removal of the anterior part of the middle turbinated an empyema of the frontal sinus is often cured because the natural channel is thus opened.

HOPPE recommended illumination of the frontal sinus for diagnosis.

KLINGEL and LOEWENSTEIN did not apply illumination, because the results are very uncertain. *Michael.*

Lauenstein, Carl (Hamburg).—*Treatment of Empyema of the Frontal Sinus.*

"Jahrb. des Hamburgischer Staatskrankenhause, Jahrgang 1892-93. Hamburg: Leopold Voss.

A PATIENT, thirty years old, had for some time a painful swelling of the frontal region on the left side. The author diagnosed empyema of the frontal sinus. Incision over the left brow and trepanation of the frontal sinus resulted in discharge of the muco-purulent contents. Cure was effected. *Michael.*

Liebert (Freiburg).—*A Case of Retro-Pharyngeal Abscess following Empyema of the Antrum of Highmore.* "Monats. für Ohrenheilk.," 1893, No. 12.

The abscess disappeared spontaneously as soon as the empyema was operated upon. *Michael.*

Beausoleil.—*Adenoid Vegetations.* "Journal de Med. de Bordeaux," Aug. 26, 1894.

THE author relates the clinical history of a young girl having a considerable mass of adenoid tumours, and he thinks that in this case the arrest of intellectual development is produced in connection with these productions. He insists on the difficulty of nasal respiration with the arched palatine vault. In these cases the vegetations determine more complete obstruction. *A. Cartaz.*

Régis, E.—*Adenoid Vegetations and Mental Degeneration.* "Journal de Med. Bordeaux," Aug. 12, 1894.

THE author does not think that mental degeneration is a consequence of adenoid tumours. These vegetations frequently coexist with other

malformations in imbecile and backward patients, and the ablation does not remedy the general condition. *A. Cartaz.*

Lermoyez.—*Tuberculous Adenoid Tumours.* "Bull. Soc. Med. des Hôp.," July 20, 1894.

THE author relates two cases of the appearance of general tuberculosis after the ablation of pharyngeal adenoid tumours. In the case of a young boy, six years old, the tumours reappeared after excision, and the general condition became bad. After the second operation, the histological and bacteriological examination shows the tuberculous nature of the tumours.

The author thinks that in some cases adenoid tumours are a manifestation of latent pharyngeal tuberculosis. *A. Cartaz.*

LARYNX, &c.

Schiossarek.—*Laryngeal Phantom for Learning Intubation.* "Wiener Klin. Woch.," 1894, No. 14.

SEE the report on the meeting of the Gesellschaft der Aerzte in Wien, January 5th, 1894. *Michael.*

Weisz (Pesth).—*What conclusions can be derived from the anatomical and physiological condition of the Larynx as to its Pathology and Treatment?* "Pester Med. Chir. Presse," 1893, No. 38.

NOTHING new. *Michael.*

Gesche.—*Acute Laryngitis.* Inaugural Dissertation. Kiel, 1893.

NOTHING new. *Michael.*

Gillet, H.—*Laryngeal Intubation in Diphtheria in France.* "Journ. des Praticiens," July 21, 1894.

CRITICAL review. *A. Cartaz.*

Bonain.—*Intubation of the Larynx in Croup by O'Dwyer's Method.* "Semaine Med.," Oct. 3, 1894.

CRITICAL review, with an explanation of the advantages of tubage, and some practical applications. *A. Cartaz.*

Ferroud.—*Intubation of the Larynx in Children and Adults; Indications, and Therapeutic Value.* Thèse de Lyon, 1894.

THIS pamphlet is an enthusiastic plea in favour of intubation as against tracheotomy. The author gives a complete historical review, and explains perfectly the *technique* of the operation, the indications, accidents, or complications. Intubation is applicable not only to diphtheritic laryngitis, but in numerous cases of laryngeal stenosis, and especially œdema or inflammatory tumefaction.

The author has modified, with advantages, O'Dwyer's instruments.

They permit extraction of the tube more easily, and they are less expensive.

A. Cartaz.

Rosenberg, A. (Berlin).—*Intubation in Stenosis of the Larynx.* "Archiv für Laryngologie und Rhinologie," 1893, Band 1, Heft 2.

AFTER a careful description of his method of intubation, the author considers the advantages and disadvantages of this treatment, as also the indications for the same. He then gives a report on twelve cases he had treated in the "Universitäts Poliklinik" for throat and nose diseases. These were cases of acute as well as chronic stenosis, as follows:—Laryngitis subglottica, perichondritis cricoidea syphilitica, papillomata laryngis, membrane formations, spasm of the adductors, bilateral paralysis of the postici, perichondritis arytenoidea tuberculosa with narrow glottis, stenosis from granulations. (For particulars see original article.)

Meyer (Kelly).

Widerhofer—*Treatment of Laryngeal Stenoses in Croup and Diphtheria.* Jahresbericht des St. Annenhospitals in Wien, 1893.

THE majority of cases were treated by intubation; only in the most severe cases was tracheotomy performed. One hundred and seventy-nine cases of primary diphtheria were treated by intubation, of which one hundred and three were cured (fifty-seven per cent.); in twenty cases there was secondary tracheotomy. Seventy-four cases died, of which sixty-three had secondary tracheotomy. Of one hundred and thirty-three grave cases treated by tracheotomy, three were cured. Of twenty-five cases of secondary croup, seven intubated cases and also seven intubated and tracheotomized cases were cured. The others were fatal. *Michael.*

Fraenkel, B. (Berlin).—*Investigation of the Minute Anatomy of the Larynx; the Ventricle of Morgagni.* "Archiv für Laryngol. und Rhinologie," 1893, Band 1, Heft 2.

THE basis of the lateral wall of the ventricle consists of muscle fibres (which arise from the thyro-arytenoid), of numerous glands (which lie partly amongst the muscle fibrillæ), and of adenoid tissue. The appendix is a peculiar organ which makes use of the cavity of the ventricle as its duct. It lies at right angles to the sinus. Its greatest measurements are from above downwards and from before backwards, its mouth being a slit about one millimètre broad, measured from before backwards. It is a complex system of hollows and canals possessing only one single duct in common. The position of its upper border varies considerably, generally reaching up into the plica ary-epiglottica. It is partly covered with cylindrical ciliated epithelium, under which is connective tissue containing round cells, and in many places adenoid tissue, and also true sub-epithelial follicles. Numerous acinous glands lie to the inside and in front.

The one function of the appendix is to secrete a fluid, which keeps the vocal cords flexible. Fraenkel compares the appendix with the pockets of the tonsils.

Along with this work there are given six beautiful photographic plates of horizontal sections through the larynx.

Meyer (Kelly).

Möller (Pasewalk).—*The Condition of the Mucous Glands of the Larynx in Laryngeal Tuberculosis.* Inaugural Dissertation. Würzburg, 1893.

CONFIRMATION of Rindfleisch's view that the mucous glands take an important part in the propagation and development of laryngeal tuberculosis. *Michael.*

Stoerk, C. (Vienna).—*On the Treatment of Tuberculosis of the Larynx and Lungs by Creosote.* "Archiv für Laryngol. und Rhinologie," 1893, Band 1, Heft 2.

THE author warns against the extensive use of creosote in the treatment of phthisis because, far from acting as a stomachic, creosote in many cases simply lessens the powers of general nutrition, and so hastens and makes more certain the patient's downward course. *Meyer (Kelly).*

Woods, R. H. (Ireland).—*Tertiary Syphilis of the Larynx.* "Brit. Med. Journ.," May 12, 1894.

A SPECIMEN from a patient who, at twenty years of age, contracted syphilis, and a year later was tracheotomized for stenosis of the larynx, caused by gummatous infiltration of the false cords. After a few weeks' treatment the infiltration disappeared, the tube was dispensed with, and the patient discharged. He drank freely, slept out of doors, etc., and became worse, and was admitted almost asphyxiated. Tracheotomy was again performed, and the tube left in permanently. Twelve months later he died from pneumonia. The larynx at the junction with the trachea was so stenosed as scarcely to admit the passage of a goose quill. There was no ulceration. *Wm. Robertson.*

Diéulafoy.—*Cancer of the Larynx.* "Annales de Médecine," Aug. 22, 1894.

GENERAL review. Professorial address. *A. Cartaz.*

Krieg, R., and Knauss, C. (Stuttgart).—*Epithelioma of the Larynx.* "Archiv für Laryngologie und Rhinologie," 1893, Band 1, Heft 2.

KRIEG gives the clinical history of a case of carcinoma of the larynx, the diagnosis being established by microscopical examination by Knauss. What is particularly striking is the long course of the illness, lasting over six years, without affecting the general condition of the patient. During the whole time no essential enlargement of the base of the tumour was made out; there was no ulceration either in the primary or in the two recurrent tumours. Operative procedures, even with the galvano-cautery, caused scarcely any reaction. Lastly, at each operation it was possible to restore the false and true cords, the ary-epiglottic fold—in short, the whole interior of the larynx—to its normal shape. Thus, from the clinical history, doubt might arise as to the diagnosis. From this and another case operated on by him, Krieg comes to the conclusion that the endo-laryngeal method can give good results, even in advanced cases of carcinoma, and should always be resorted to in cases where the radical operation is refused. *Meyer (Kelly).*

Hofmökler (Wien).—*Surgical After-Treatment of Laryngotomy and Tracheotomy.* "Centralbl. für der gesammte Therapie." Wien, 1893.

OF surgical interest.

Michael.

Murphy (Sunderland).—*A Simple Method of preventing the Entrance of Blood into the Trachea during Operations about the Mouth.* "Brit. Med. Journ.," May 5, 1894.

EXTENDING the neck over the operating table so that the patient's head hangs lower than the rest of the body, face up. [For tonsils, adenoids, etc., the post-nasum and oro-pharynx would immediately become filled with blood, which would overflow into the pharynx and larynx, so that it is not to be commended.—*Rep.*]

Wm. Robertson.

Morton (Bristol).—*Persistence of the Thyro-Glossal Duct.* "Brit. Med. Journ.," May 12, 1894.

THIS occurred in the case of a man, aged nineteen, who consulted Dr. Baron for a swelling over the larynx, and expectoration of mucus, which was thought to be connected with it. Dr. Baron found nothing abnormal in the larynx. The external swelling appeared when he was three years old, and was then lanced, and discharged a glairy fluid. It then closed, and was lanced frequently. The swelling was the size of a walnut, just above the pomum Adami in the middle line. It moved freely with the larynx on swallowing. On dissecting out the cyst it was found to lie over the thyro-hyoid membrane and hyoid bone, and contained a clear jelly, with streaks of pus. The next day a drachm of jelly came away from the wound, after which healing set in. No cord was found leading upwards to the tongue, although this might have existed to account for the subsequent discharge.

Wm. Robertson.

Delasalle, Paul.—*Tracheal Fistule and their Treatment.* Thèse de Paris, 1894.

THE author studies the fistulæ consecutive to tracheotomy performed for various diseases. He indicates the obstacles to the withdrawing, at a favourable moment, of the canula (polypous excrescences, laryngeal paralysis, glottic spasm, etc.), and the consequences of these difficulties. The methods of surgical treatment of that condition are reviewed in detail. He relates Kirmisson's case.

A. Cartaz.

Kirmisson.—*Tracheal Fistule.* "Bull. Méd.," July 1, 1894.

THE author reports the case of a young man, sixteen years of age, tracheotomized at the age of eleven for laryngeal diphtheria. The canula had remained in place since that operation. The author withdrew the canula with great precautions, and was astonished to observe no respiratory troubles, and no difficulty in breathing by the larynx. He does not know the causes which had prevented the removal of the tube. The fistula has been obliterated by autoplasmic operation. Radical cure resulted.

The author discusses the varieties of tracheal fistulæ and the appropriate surgical operations.

A. Cartaz.

Scheuer.—*Tracheal Tumours.* Dissertation. München, 1893.

A REVIEW of the literature of tracheal tumours and description of a case observed by the author. The tumour, an adenoma, situated on the sixth to eighth tracheal cartilage, was removed by deep tracheotomy. Cure resulted.

Michael.

THYROID GLAND, &c.

Staelin (Hamburg).—*Accessory Thyroid Gland*. "Jahrb. des Hamburgischer Staatskrankenhause, Jahrgang 1892-93." Hamburg and Leipzig: Leopold Voss.

IN the *post-mortem* examination of a patient dead from cancer of the stomach the author found a tumour the size of a nut on the base of the tongue. The examination showed it to be an accessory thyroid gland. *Intra vitam* the tumour had not caused any symptoms. *Michael*.

Hitzig (Zurich).—*Contribution to Histology and Histogenesis of Goitre*. "Langenbeck's Archiv," Band 47, Heft 2.

OF pathologico-anatomical interest.

Michael.

Engel-Reinners (Hamburg).—*On Swelling of the Thyroid Gland in Early Periods of Syphilis*. "Jahrb. des Hamburgischer Staatskrankenhause, Jahrgang 1892-93." Hamburg and Leipzig: Leopold Voss.

RESEARCHES in the large syphilitic department of the Hamburg Hospital showed that enlargement of the thyroid gland is a very common event in the early stage of syphilis. In nearly half of all cases this enlargement has been observed. Of one hundred and fifty-two diseased women it was observed eighty-six times, and of ninety-eight affected men forty-four times. In fifty-two women and twenty men the goitre was visible at a glance; in the others the swelling was less. In no case did the swelling produce any pain, and in no case was it remarked by the patient before examination. Pregnant and nursing women are not included in the inquiry. For the estimation of the importance of the symptoms a great many control examinations were made on other patients. The swelling arises very early—sometimes during the incubation period, sometimes combined with the first appearance of constitutional symptoms. As on the swelling of the lymphatic glands, mercurial treatment has no influence on the thyroid swelling; it disappears slowly after a few years. Basedow's symptoms were not associated with the swelling in any case, but there exists a case of myxœdema, which was cured by the use of mercury, and which seems, therefore, to have had some relation to the syphilis.

Michael.

Ssalitschew (Tomsk).—*True isolated Lateral Accessory Goitre*. "Langenbeck's Archiv," Band 48, Heft 2.

A PATIENT, fifty years old, had three tumours the size of a nut in the trigonum laterale colli. She had had the tumours since early youth, but they have developed for some years, and have become especially larger after each menstruation. Extirpation was followed by cure. The examination of the extirpated tumours showed that they were true accessory goitres. *Michael*.

Garré (Tubingen). — *Treatment of Goitre by Farenchymatous Injections of Iodoform*. "Correspondenzbl. für Schweizer Aerzte," 1894, No. 12.

THE author has applied injections of iodoform 1'o, ol. olive and ether sulph. ãã 7'o, in more than forty cases, and has obtained good results in the majority of them. Dangerous symptoms never were developed.

Michael.

Perregauz (Basel). — *On Morbus Basedowii (Graves' Disease)*. "Correspbl. für Schweizer Aerzte," 1894, No. 11.

DESCRIPTION of two cases of the disease, and recommendation of the electric treatment.

Michael.

Reinhold (Freiburg). — *Pathology of Morbus Basedowii (Graves' Disease)*. "Münchener Med. Woch.," 1894, No. 23.

A PATIENT, thirty-five years old, had last year a disorder of the stomach, but during this time no symptoms of Basedow's disease appeared. In December, 1893, she was attacked with influenza, which was followed by an acute strumitis, but this was cured some weeks later. Three months later the patient had all the symptoms of Basedow's disease. The strumitis cannot be regarded as an acute febrile commencement of the Basedow's disease because it was cured, but it is possible that by the strumitis the secretion of the gland was changed, and this might be regarded as favourable to the hypothesis that Basedow's disease is a form of intoxication by secretions of the thyroid gland. The author could find only one case recorded in which strumitis preceded Basedow's disease.

Michael.

Eiselberg (Wien). — *Physiological Function of a Cancroid Metastasis of the Thyroid Gland originating from the Sternum*. "Langenbeck's Archiv," Band 48, Heft 3.

THE patient, thirty-eight years old, had a large goitre compressing the trachea. In 1886 the right half of the tumour was extirpated, and, as it was evident that the left part also produced compression, this was removed. Some weeks later, cachexia arose, consisting of anæmia and tetanic contractions. During a pregnancy in 1880 a tumour originated over the sternum, enlarging to the size of a fist. During the development of the tumour the symptoms of cachexia disappeared. In spite of this the patient desired to be operated upon in consequence of the lancinating pains in both arms and the rapid increase of the tumour. The author removed it, because it seemed to be a malignant tumour. The microscopical examination showed that it was a malignant metastasis of the thyroid gland, a colloid cylindrical epithelioma. Some days later tetanic contractions occurred, which recurred sometimes. Anæmia and apathy arose in a characteristic manner. During 1893 a new metastasis occurred in the right bone, but this time with no improvement of the strumiprævious symptoms. The case is of the greatest interest from the fact that the colloid tumour had supplanted the functions of the thyroid gland.

Michael.

Meltzer (New York).—*On Myxœdema*. "New York Med. Woch.," April, 1894.

THE author gives a complete report of the literature of myxœdema, and then relates a case observed by himself. The patient, thirty-seven years old, had for some years all the symptoms of myxœdema, which are elaborately described. By treatment with pulverized sheep's thyroid all symptoms disappeared in three months, and the patient was cured.

Michael.

Dickenson (Leamington).—*A Case of Congenital Hydrocele of the Neck cured by Drainage and Compression*. "Brit. Med. Journ.," May 12, 1894.

THIS occurred in a child, aged three years, and extended from the ear to the shoulder, filling up the sulcus of the neck. It was a soft white fluctuating swelling, translucent, without veins running over it, and becoming dense during screaming or coughing. Eight ounces of dark greenish-brown highly albuminous fluid being drawn off, a small incision was made into the posterior part of the cyst, through which the cavity was explored. The sterno-mastoid muscle in front of the wall of the cyst felt thin and atrophied; the carotid lying by the trachea, and the sub-clavian passing over the soft lung, were felt quite hard and clear, and apparently having no covering, but lying free in the cyst. The arteries could be followed down behind the sternum to the arch of the aorta, which was felt beating vigorously, and to the touch quite bare. A seton was introduced into the cyst wall. In five weeks the wound was healed, and no recurrence of the cyst has taken place. The cyst extended from the sternal end of the clavicle in front to the middle line behind, and quite filled up the sulcus between the neck and shoulder, and overhung the clavicle in front.

Wm. Robertson.

EARS.

Scripture, E. W.—*The Use of Antiphones*. "New York Med. Journ.," April 7, 1894.

THE use of antiphones made of sealing wax in cases of insomnia is advocated.

R. Lake.

Schmiegelow, E. (Copenhagen).—*Foreign Body in the Tympanum; Removal; Tetanus*. "Ugeskrift for Læger," 1894, No. 11.

THE author removed a small stone which, for eleven days, lodged in the tympanum of a boy aged three and three-quarter years, and which had caused a purulent discharge from the ear, after several medical men had tried in vain to remove the foreign body. The operation was performed by loosening the auricle and removing by means of chisels the posterior and superior wall of the osseous auditory meatus. Twenty-four hours after the operation slight rigidity of the muscles began to develop, and thirty-six hours later typical tetanic convulsions set in, death occurring five days after the operation. The author considers it beyond all doubt that the infection was caused by the foreign body itself.

Holger Mygind.

Stangenberg, E. (Stockholm).—*Contribution to our Knowledge of the State of the Hearing Organ, the Nose and the Pharynx of our School Children.* "Hygeia," March, 1894.

THE examination embraced 2344 school-children, of whom 1416 were boys and 928 girls, all belonging to different social classes. The power of hearing was examined by means of whispering figures, ranging from 1 to 100. 11·30 per cent. of the individuals examined were deaf in one or both ears, the percentage being 12·07 in girls and 10·81 in boys—a result which is much more favourable than any obtained by previous authors. Discharge from the ear was found in 1·88 per cent. of the cases examined, the percentage being 2·22 in boys and 1·35 in girls. 16·56 per cent. of the individuals examined, who exhibited objective signs of ear disease, had their right side affected, 21·03 their left side, and in 62·41 per cent. the disease was bilateral. Diffuse rhinitis was found in 11·09 per cent., atrophic rhinitis in 3·67, hypertrophy of the pharyngeal tonsil in 7·38, adenoid vegetations in 2·77, diffuse pharyngitis in 2·81, pharyngitis sicca in 1·32, granular pharyngitis in 50·25, and hypertrophy of the tonsils in 14·98 per cent. of the cases examined. As to the significance of these diseases in relation to the hearing organ, the author came to the following conclusions:—(1) The frequently existing hyperplasia of the adenoid tissue of the oral part of the pharynx, and the more rarely appearing hypertrophic and atrophic catarrh of the pharynx is comparatively more frequently combined with normal hearing organs than the corresponding affections of the nose and the naso-pharynx; (2) the hyperplasia of the lymphatic tissue of the naso-pharyngeal cavity is, of all diseases mentioned above, most frequently associated with ear disease; (3) atrophic rhinitis is more frequently complicated with ear disease than the hypertrophic form.

Holger Mygind.

Dalby (London).—*Note on Auditory Vertigo.* "Brit. Med. Journ.," May 12, 1894. IN this thoughtful contribution the author asks for a determined line of division in these cases—on the one side to be placed those cases in which the external and middle ear are healthy; on the other side, those in which both are unhealthy. The next point is that the term "Ménière's disease" must either be dismissed or retained for those cases in which there is no disease of the conducting media. Vertigo, it is remarked, in long-continued otorrhœa is often the advent of cerebral complications.

Wm. Robertson.

Mackenzie, Stephen (London) —*Remarks on the Nature, Diagnosis, Prognosis and Treatment of Aural Vertigo.* "Brit. Med. Journ.," May 5, 1894.

THESE remarks are introduced by reference to a pronounced case of aural vertigo in a man aged fifty, beginning with vertigo, vomiting, and deafness. The subject is dealt with under the following heads: (1) Seat of lesion; (2) its nature; (3) the mechanism by which the chief phenomena are brought about: (*a*) tinnitus, (*b*) deafness, (*c*) vertigo, (*d*) locomotor inco-ordination, (*e*) vital symptoms (faintness, perspirations, nausea, vomiting), (*f*) movements of the eyes; (4) the diagnosis; (5) the prognosis, and (6) the treatment of aural vertigo.

In answer to the first point the author inclines to the opinion that the

seat of the lesion is to be found in the semicircular canals, and that this (the lesion) is of an irritative character producing its effects so long as there is no absolute atrophy of the auditory nerve. It is pointed out that Buzzard and Dalby suggest a bulbar origin for some of these cases of aural vertigo. As to the nature of the lesion it is observed that in few cases indeed has coarse disease been demonstrated in the semicircular canals. There are causes direct and indirect which may irritate the nerve terminations of the former, *e.g.*, hæmorrhage, syphilis of the latter, *e.g.*, otitis media. The theory of Spear that there is a condition in the labyrinth resembling glaucoma, as well as Knapp's suggestion that Ménière's disease is an idiopathic, serous exudative otitis interna, are referred to. Seeing that aural vertigo occurs in the latter part of life, degenerative changes in the local blood vessels is probable, and Gower's statement that it is associated with gout (in the labyrinthine membrane) is supported.

In the case referred to, the author imagines that the lesion consists of inflammatory changes in the labyrinth, associated with middle-ear disease. In discussing the mechanism by which the chief phenomena are brought about, tinnitus is attributable to pressure disturbances in the cochlea; possibly minute changes (degeneration) occur in the cochlear nerve. Deafness, almost always present at some period in aural vertigo, is again due to some change in the cochlea. The vertigo defined by Hughlings Jackson as the consciousness of disturbed equilibration, a rudimentary inco-ordination of locomotive movements, associated as it is in this form with deafness and tinnitus, is no doubt due to disease in the semicircular canals. The lesion may be functional or organic, and may be in the trunk or in the nucleus of the nerve, but the proved existence of disease in the middle ear renders it highly probable that it is a peripheral and not a central lesion in these cases. The locomotor inco-ordination may in some cases be due to abeyance of function in the cerebellum, or in other cases to alteration of this organ. The vital symptoms (nausea, vomiting, faintness) are due to shock, and attributable perhaps to overflow of the irritation in the acoustic nucleus to the closely adjacent vagus nucleus in the medulla. The true diagnosis of the disease is difficult, *i.e.*, the different conditions that may cause the disease. When tinnitus, vertigo, nausea, and vomiting occur together, suspicion as to an aural origin ought to be entertained. In the majority of these cases a certain degree of deafness is appreciable. The treatment consists in the recumbent position during an attack and bromide of potassium in fair doses. Lithium may be given in gouty cases. Counter-irritation and attention to the ear affection. The inter-paroxysmal treatment consists in the administration of quinine. Pilocarpin is used by Field. Mercury is useful to keep down arterial tension, and is beneficial when given during the premonitory symptoms of an attack.

Wm. Robertson.

Wilkin (London).—*Pyostatin in Epithelioma of the Ear.* "Brit. Med. Journ.," May 12, 1894.

THIS was a case of epithelioma of the ear. The left pinna was very prominent, had a large swelling in front of the ear, and the skin over

the mastoid was adherent and discoloured. Pyoktannin injections (one in five hundred, one in three hundred, and then one in one hundred) were used. The growth hardened and became more defined after two injections, and the pain was relieved. Death took place sixty-five days after the first injection, and at the *post-mortem* examination no epithelioma was found in the tissues in front of the ear. *Wm. Robertson.*

Hammond, L. J. — *Three Cases of Attic Suppuration followed by Facial Paralysis.* "Med. News," May 26, 1894.

IN one case the paralysis was marked immediately after the operation itself was finished—in all cases Stacke's—and was persistent, though two months' galvanic treatment restored some muscles. In the other two the paralysis was of later onset and not persistent. *R. Lake.*

REVIEW.

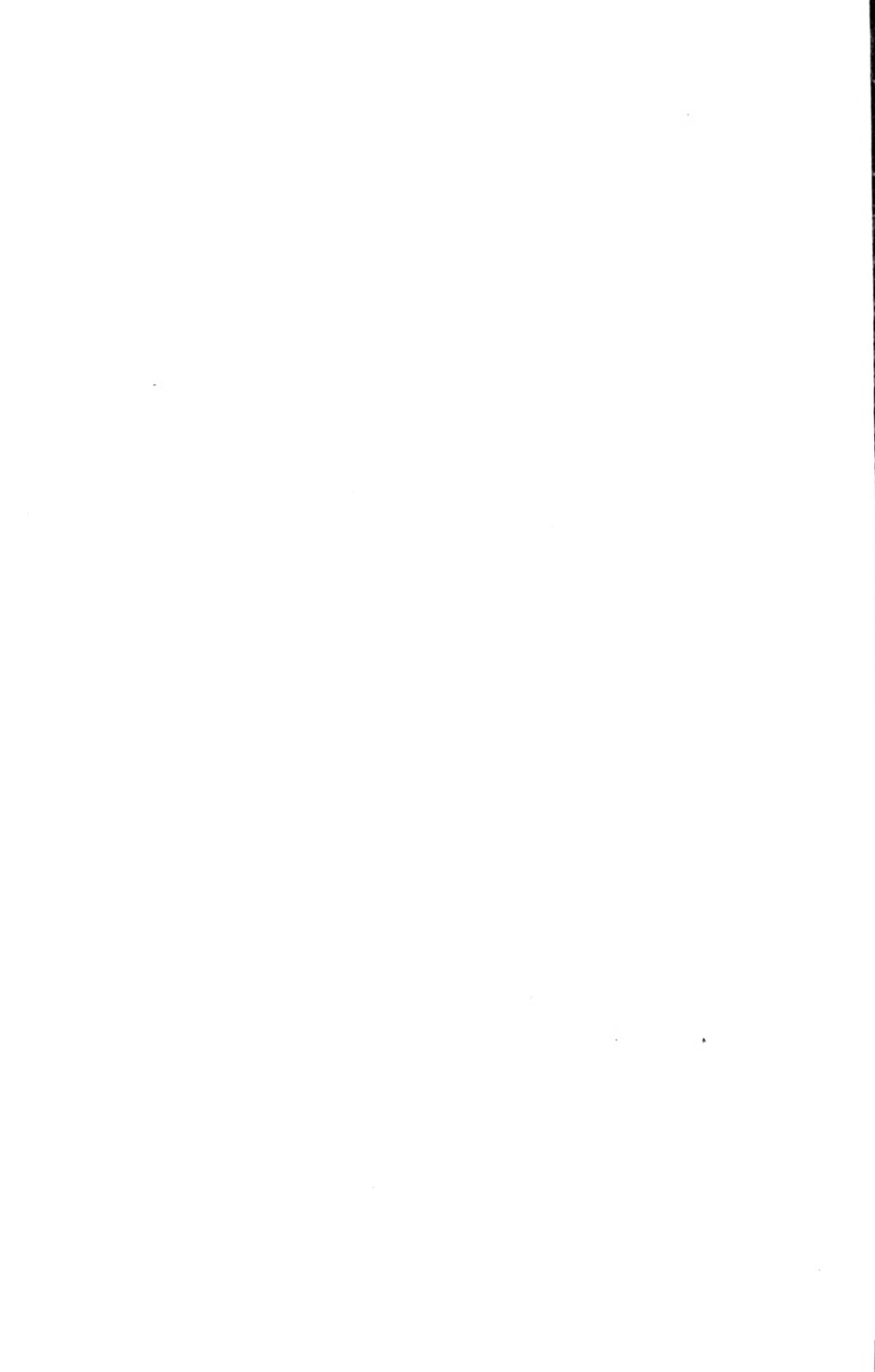
Klebs (Karlsruhe).—*Die causale Behandlung der Tuberculose; Experimentelle und Klinische Studien. Mit einer Photogravure, sieben farben und Kurventafeln, vier figuren im Text und eines statistischen Beilage.* Hamburg and Leipzig: Leopold Voss. Six hundred and thirty pages. ("The Causal Treatment of Tuberculosis; Experimental and Clinical Studies." With one Photogravure, seven coloured Plates and Tables of Curves, four Woodcuts in the Text, and one Statistical Table.)

THE dubious results of tuberculin have induced the author to make studies upon the causes of the danger sometimes arising in consequence of the use of the medicament, and to seek for methods to avoid this danger, and to change tuberculin into a substance which preserves only its curative powers without disagreeable after-effects. He begins his book with a review of the history of tuberculosis; he then analyzes the different forms and the course of the disease. The chapters following relate the results of his experiments with Koch's tuberculin on guinea-pigs, a histological description of the tubercles, and the results of a careful examination of the different substances which Koch's tuberculin contains, and their physiological effects. The author then describes two substances which he has produced by several chemical processes from "rohtuberculin." He has removed the toxic substances from tuberculin, and has so obtained a medicament which has the curative properties of tuberculin without its deleterious effects. Extensive casuistical records prove the good results which he has obtained by the application of the new substance. It is not possible to review in a short report all the carefully collected details of the work, and the results of the microscopical and physiological examinations. The perusal of the book is necessary for all who desire to make scientific researches on the effect of the new substances. The polemical papers directed against the views of the author were reported in former numbers of this journal.

Michael.

APPOINTMENT.

Dr. WILLIAM J. HILL has been appointed to the charge of Aural Out-patients at St. Mary's Hospital.





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